

VI. SUMMARY OF APPLICABLE FEDERAL STATUTES AND REGULATIONS

This section discusses the Federal statutes and regulations that may apply to this sector. The purpose of this section is to highlight, and briefly describe the applicable Federal requirements, and to provide citations for more detailed information. The three following sections are included.

- Section IV.A contains a general overview of major statutes
- Section IV.B contains a list of regulations specific to this industry
- Section IV.C contains a list of pending and proposed regulations

The descriptions within Section IV are intended solely for general information. Depending upon the nature or scope of the activities at a particular facility, these summaries may or may not necessarily describe all applicable environmental requirements. Moreover, they do not constitute formal interpretations or clarifications of the statutes and regulations. For further information, readers should consult the Code of Federal Regulations and other state or local regulatory agencies. EPA Hotline contacts are also provided for each major statute.

VI.A. General Description of Major Statutes

Resource Conservation And Recovery Act

The Resource Conservation And Recovery Act (RCRA) of 1976 which amended the Solid Waste Disposal Act, addresses solid (Subtitle D) and hazardous (Subtitle C) waste management activities. The Hazardous and Solid Waste Amendments (HSWA) of 1984 strengthened RCRA's waste management provisions and added Subtitle I, which governs underground storage tanks (USTs).

Regulations promulgated pursuant to Subtitle C of RCRA (40 CFR Parts 260-299) establish a "cradle-to-grave" system governing hazardous waste from the point of generation to disposal. RCRA hazardous wastes include the specific materials listed in the regulations (commercial chemical products, designated with the code "P" or "U"; hazardous wastes from specific industries/sources, designated with the code "K"; or hazardous wastes from non-specific sources, designated with the code "F") or materials which exhibit a hazardous waste characteristic (ignitibility, corrosivity, reactivity, or toxicity and designated with the code "D").

Regulated entities that generate hazardous waste are subject to waste accumulation, manifesting, and recordkeeping standards. Facilities that treat, store, or dispose of hazardous waste must obtain a permit, either from EPA or from a State agency which EPA has authorized to implement the permitting program. Subtitle C permits contain

general facility standards such as contingency plans, emergency procedures, recordkeeping and reporting requirements, financial assurance mechanisms, and unit-specific standards. RCRA also contains provisions (40 CFR Part 264 Subpart S and §264.10) for conducting corrective actions which govern the cleanup of releases of hazardous waste or constituents from solid waste management units at RCRA-regulated facilities.

Although RCRA is a Federal statute, many States implement the RCRA program. Currently, EPA has delegated its authority to implement various provisions of RCRA to 46 of the 50 States.

Most RCRA requirements are not industry specific but apply to any company that transports, treats, stores, or disposes of hazardous waste. Here are some important RCRA regulatory requirements:

- **Identification of Solid and Hazardous Wastes** (40 CFR Part 261) lays out the procedure every generator should follow to determine whether the material created is considered a hazardous waste, solid waste, or is exempted from regulation.
- **Standards for Generators of Hazardous Waste** (40 CFR Part 262) establishes the responsibilities of hazardous waste generators including obtaining an ID number, preparing a manifest, ensuring proper packaging and labeling, meeting standards for waste accumulation units, and recordkeeping and reporting requirements. Generators can accumulate hazardous waste for up to 90 days (or 180 days depending on the amount of waste generated) without obtaining a permit.
- **Land Disposal Restrictions** (LDRs) are regulations prohibiting the disposal of hazardous waste on land without prior treatment. Under the LDRs (40 CFR 268), materials must meet land disposal restriction (LDR) treatment standards prior to placement in a RCRA land disposal unit (landfill, land treatment unit, waste pile, or surface impoundment). Wastes subject to the LDRs include solvents, electroplating wastes, heavy metals, and acids. Generators of waste subject to the LDRs must provide notification of such to the designated TSD facility to ensure proper treatment prior to disposal.
- **Used Oil Management Standards** (40 CFR Part 279) impose management requirements affecting the storage, transportation, burning, processing, and re-refining of the used oil. For parties that merely generate used oil, regulations establish storage standards. For a party considered a used oil marketer (one who generates and sells off-specification used oil directly to a used oil burner), additional tracking and paperwork requirements must be satisfied.
- **Tanks and Containers** used to store hazardous waste with a high volatile organic concentration must meet emission standards under RCRA. Regulations (40 CFR Part 264-265, Subpart CC) require generators to test the

waste to determine the concentration of the waste, to satisfy tank and container emissions standards, and to inspect and monitor regulated units. These regulations apply to all facilities who store such waste, including generators operating under the 90-day accumulation rule.

- **Underground Storage Tanks (USTs)** containing petroleum and hazardous substance are regulated under Subtitle I of RCRA. Subtitle I regulations (40 CFR Part 280) contain tank design and release detection requirements, as well as financial responsibility and corrective action standards for USTs. The UST program also establishes increasingly stringent standards, including upgrade requirements for existing tanks, that must be met by 1998.
- **Boilers and Industrial Furnaces (BIFs)** that use or burn fuel containing hazardous waste must comply with strict design and operating standards. BIF regulations (40 CFR Part 266, Subpart H) address unit design, provide performance standards, require emissions monitoring, and restrict the type of waste that may be burned.

EPA's RCRA/Superfund/UST Hotline, at (800) 424-9346, responds to questions and distributes guidance regarding all RCRA regulations. The RCRA Hotline operates weekdays from 8:30 a.m. to 7:30 p.m., EST, excluding Federal holidays.

Comprehensive Environmental Response, Compensation, And Liability Act

The Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), a 1980 law commonly known as Superfund, authorizes EPA to respond to releases, or threatened releases, of hazardous substances that may endanger public health, welfare, or the environment. CERCLA also enables EPA to force parties responsible for environmental contamination to clean it up or to reimburse the Superfund for response costs incurred by EPA. The Superfund Amendments and Reauthorization Act (SARA) of 1986 revised various sections of CERCLA, extended the taxing authority for the Superfund, and created a free-standing law, SARA Title III, also known as the Emergency Planning and Community Right-to-Know Act (EPCRA).

The CERCLA **hazardous substance release reporting regulations** (40 CFR Part 302) direct the person in charge of a facility to report to the National Response Center (NRC) any environmental release of a hazardous substance which exceeds a reportable quantity. Reportable quantities are defined and listed in 40 CFR § 302.4. A release report may trigger a response by EPA, or by one or more Federal or State emergency response authorities.

EPA implements **hazardous substance responses** according to procedures outlined in the National Oil and Hazardous Substances Pollution Contingency Plan (NCP) (40 CFR Part 300). The NCP includes provisions for permanent cleanups, known as remedial actions, and other cleanups referred to as "removals." EPA generally takes remedial actions only at sites on the National Priorities List (NPL), which currently includes approximately 1300 sites. Both EPA and states can act at other sites; however, EPA provides responsible parties the opportunity to conduct removal and remedial actions and encourages community involvement throughout the Superfund response process.

EPA's RCRA/Superfund/UST Hotline, at (800) 424-9346, answers questions and references guidance pertaining to the Superfund program. The CERCLA Hotline operates weekdays from 8:30 a.m. to 7:30 p.m., EST, excluding Federal holidays.

Emergency Planning And Community Right-To-Know Act

The Superfund Amendments and Reauthorization Act (SARA) of 1986 created the Emergency Planning and Community Right-to-Know Act (EPCRA, also known as SARA Title III), a statute designed to improve community access to information about chemical hazards and to facilitate the development of chemical emergency response plans by State and local governments. EPCRA required the establishment of State emergency response commissions (SERCs), responsible for coordinating certain emergency response activities and for appointing local emergency planning committees (LEPCs).

EPCRA and the EPCRA regulations (40 CFR Parts 350-372) establish four types of reporting obligations for facilities which store or manage specified chemicals:

- **EPCRA §302** requires facilities to notify the SERC and LEPC of the presence of any "extremely hazardous substance" (the list of such substances is in 40 CFR Part 355, Appendices A and B) if it has such substance in excess of the substance's threshold planning quantity, and directs the facility to appoint an emergency response coordinator.
- **EPCRA §304** requires the facility to notify the SERC and the LEPC in the event of a release exceeding the reportable quantity of a CERCLA hazardous substance or an EPCRA extremely hazardous substance.
- **EPCRA §§311 and 312** require a facility at which a hazardous chemical, as defined by the Occupational Safety and Health Act, is present in an amount exceeding a specified threshold to submit to the SERC, LEPC, and local fire department material safety data sheets (MSDSs) or lists of MSDSs and hazardous chemical inventory forms (also known as Tier I and II forms). This information helps the local government respond in the event of a spill or release of the chemical.
- **EPCRA §313** requires manufacturing facilities included in SIC codes 20 through 39, which have ten or more employees, and which manufacture, process, or use specified chemicals in amounts greater than threshold quantities, to submit an annual toxic chemical release report. This report, commonly known as the Form R, covers releases and transfers of toxic chemicals to various facilities and environmental media, and allows EPA to compile the national Toxic Release Inventory (TRI) database.

All information submitted pursuant to EPCRA regulations is publicly accessible, unless protected by a trade secret claim.

EPA's EPCRA Hotline, at (800) 535-0202, answers questions and distributes guidance regarding the emergency planning and community right-to-know regulations. The EPCRA Hotline operates weekdays from 8:30 a.m. to 7:30 p.m., EST, excluding Federal holidays.

Clean Water Act

The primary objective of the Federal Water Pollution Control Act, commonly referred to as the Clean Water Act (CWA), is to restore and maintain the chemical, physical, and biological integrity of the nation's surface waters. Pollutants regulated under the CWA include "priority" pollutants, including various toxic pollutants; "conventional" pollutants, such as biochemical oxygen demand (BOD), total suspended solids (TSS), fecal coliform, oil and grease, and pH; and "non-conventional" pollutants, including

any pollutant not identified as either conventional or priority.

The CWA regulates both direct and indirect discharges. The **National Pollutant Discharge Elimination System (NPDES)** program (CWA §402) controls direct discharges into navigable waters. Direct discharges or "point source" discharges are from sources such as pipes and sewers. NPDES permits, issued by either EPA or an authorized State (EPA has presently authorized forty States to administer the NPDES program), contain industry-specific, technology-based and/or water quality-based limits, and establish pollutant monitoring and reporting requirements. A facility that intends to discharge into the nation's waters must obtain a permit prior to initiating its discharge. A permit applicant must provide quantitative analytical data identifying the types of pollutants present in the facility's effluent. The permit will then set forth the conditions and effluent limitations under which a facility may make a discharge.

A NPDES permit may also include discharge limits based on Federal or State water quality criteria or standards, that were designed to protect designated uses of surface waters, such as supporting aquatic life or recreation. These standards, unlike the technological standards, generally do not take into account technological feasibility or costs. Water quality criteria and standards vary from State to State, and site to site, depending on the use classification of the receiving body of water. Most States follow EPA guidelines which propose aquatic life and human health criteria for many of the 126 priority pollutants.

Storm Water Discharges

In 1987 the CWA was amended to require EPA to establish a program to address **storm water discharges**. In response, EPA promulgated the NPDES storm water permit application regulations. Storm water discharge associated with industrial activity means the discharge from any conveyance which is used for collecting and conveying storm water and which is directly related to manufacturing, processing or raw materials storage areas at an industrial plant (40 CFR 122.26(b)(14)). These regulations require that facilities with the following storm water discharges apply for a NPDES permit: (1) a discharge associated with industrial activity; (2) a discharge from a large or medium municipal storm sewer system; or (3) a discharge which EPA or the State determines to contribute to a violation of a water quality standard or is a significant contributor of pollutants to waters of the United States.

The term "storm water discharge associated with industrial activity" means a storm water discharge from one of 11 categories of industrial activity defined at 40 CFR 122.26. Six of the categories are defined by SIC codes while the other five are identified through narrative descriptions of the regulated industrial activity. If the primary SIC code of the facility is one of those identified in the regulations, the facility is subject to the storm water permit application requirements. If any activity at a facility is covered by one of the five narrative categories, storm water discharges from those areas where the activities occur are subject to storm water discharge permit application requirements.

Those facilities/activities that are subject to storm water discharge permit application requirements are identified below. To determine whether a particular facility falls within one of these categories, the regulation should be consulted.

Category i: Facilities subject to storm water effluent guidelines, new source performance standards, or toxic pollutant effluent standards.

Category ii: Facilities classified as SIC 24-lumber and wood products (except wood kitchen cabinets); SIC 26-paper and allied products (except paperboard containers and products); SIC 28-chemicals and allied products (except drugs and paints); SIC 29-petroleum refining; and SIC 311-leather tanning and finishing.

Category iii: Facilities classified as SIC 10-metal mining; SIC 12-coal mining; SIC 13-oil and gas extraction; and SIC 14-nonmetallic mineral mining.

Category iv: Hazardous waste treatment, storage, or disposal facilities.

Category v: Landfills, land application sites, and open dumps that receive or have received industrial wastes.

Category vi: Facilities classified as SIC 5015-used motor vehicle parts; and SIC 5093-automotive scrap and waste material recycling facilities.

Category vii: Steam electric power generating facilities.

Category viii: Facilities classified as SIC 40-railroad transportation; SIC 41-local passenger transportation; SIC 42-trucking and warehousing (except public warehousing and storage); SIC 43-U.S. Postal Service; SIC 44-water transportation; SIC 45-transportation by air; and SIC 5171-petroleum bulk storage stations and terminals.

Category ix: Sewage treatment works.

Category x: Construction activities except operations that result in the disturbance of less than five acres of total land area.

Category xi: Facilities classified as SIC 20-food and kindred products; SIC 21-tobacco products; SIC 22-textile mill products; SIC 23-apparel related products; SIC 2434-wood kitchen cabinets manufacturing; SIC 25-furniture and fixtures; SIC 265-paperboard containers and boxes; SIC 267-converted paper and paperboard products; SIC 27-printing, publishing, and allied industries; SIC 283-drugs; SIC 285-paints, varnishes, lacquer, enamels, and allied products; SIC 30-rubber and plastics; SIC 31-leather and leather products (except leather and tanning and finishing); SIC 323-glass products; SIC 34-fabricated metal products (except fabricated structural metal); SIC 35-industrial and commercial machinery and computer equipment; SIC 36-electronic and other electrical equipment and components; SIC 37-transportation equipment (except ship and boat building and repairing); SIC 38-measuring, analyzing, and controlling instruments; SIC 39-miscellaneous manufacturing industries; and SIC 4221-4225-public warehousing and storage.

Pretreatment Program

Another type of discharge that is regulated by the CWA is one that goes to a publicly-owned treatment works (POTWs). The national **pretreatment program** (CWA §307(b)) controls the indirect discharge of pollutants to POTWs by "industrial users." Facilities regulated under §307(b) must meet certain pretreatment standards. The goal of the pretreatment program is to protect municipal wastewater treatment plants from damage that may occur when hazardous, toxic, or other wastes are discharged into a sewer system and to protect the quality of sludge generated by these plants. Discharges to a POTW are regulated primarily by the POTW itself, rather than the State or EPA.

EPA has developed technology-based standards for industrial users of POTWs. Different standards apply to existing and new sources within each category. "Categorical" pretreatment standards applicable to an industry on a nationwide basis are developed by EPA. In addition, another kind of pretreatment standard, "local limits," are developed by the POTW in order to assist the POTW in achieving the effluent limitations in its NPDES permit.

Regardless of whether a State is authorized to implement either the NPDES or the pretreatment program, if it develops its own program, it may enforce requirements more stringent than Federal standards.

EPA's Office of Water, at (202) 260-5700, will direct callers with questions about the CWA to the appropriate EPA office. EPA also maintains a bibliographic database of Office of Water publications which can be accessed through the Ground Water and Drinking Water resource center, at (202) 260-7786.

Safe Drinking Water Act

The Safe Drinking Water Act (SDWA) mandates that EPA establish regulations to protect human health from contaminants in drinking water. The law authorizes EPA to develop national drinking water standards and to create a joint Federal-State system to ensure compliance with these standards. The SDWA also directs EPA to protect underground sources of drinking water through the control of underground injection of liquid wastes.

EPA has developed primary and secondary drinking water standards under its SDWA authority. EPA and authorized States enforce the primary drinking water standards, which are, contaminant-specific concentration limits that apply to certain public drinking water supplies. Primary drinking water standards consist of maximum contaminant level goals (MCLGs), which are non-enforceable health-based goals, and maximum contaminant levels (MCLs), which are enforceable limits set as close to MCLGs as possible, considering cost and feasibility of attainment.

The SDWA **Underground Injection Control (UIC)** program (40 CFR Parts 144-148) is a permit program which protects underground sources of drinking water by regulating five classes of injection wells. UIC permits include design, operating, inspection, and monitoring requirements. Wells used to inject hazardous wastes must also comply with RCRA corrective action standards in order to be granted a RCRA permit, and must meet applicable RCRA land disposal restrictions standards. The UIC permit program is primarily State-enforced, since EPA has authorized all but a few States to administer the program.

The SDWA also provides for a Federally-implemented Sole Source Aquifer program, which prohibits Federal funds from being expended on projects that may contaminate the sole or principal source of drinking water for a given area, and for a State-implemented Wellhead Protection program, designed to protect drinking water wells and drinking water recharge areas.

EPA's Safe Drinking Water Hotline, at (800) 426-4791, answers questions and distributes guidance pertaining to SDWA standards. The Hotline operates from 9:00 a.m. through 5:30 p.m., EST, excluding Federal holidays.

Toxic Substances Control Act

The Toxic Substances Control Act (TSCA) granted EPA authority to create a regulatory framework to collect data on chemicals in order to evaluate, assess, mitigate, and control risks which may be posed by their manufacture, processing, and use. TSCA provides a variety of control methods to prevent chemicals from posing unreasonable risk.

TSCA standards may apply at any point during a chemical's life cycle. Under TSCA §5, EPA has established an inventory of chemical substances. If a chemical is not already on the inventory, and has not been excluded by TSCA, a premanufacture notice (PMN) must be submitted to EPA prior to manufacture or import. The PMN must identify the chemical and provide available information on health and environmental effects. If available data are not sufficient to evaluate the chemical's effects, EPA can impose restrictions pending the development of information on its health and environmental effects. EPA can also restrict significant new uses of chemicals based upon factors such as the projected volume and use of the chemical.

Under TSCA §6, EPA can ban the manufacture or distribution in commerce, limit the use, require labeling, or place other restrictions on chemicals that pose unreasonable risks. Among the chemicals EPA regulates under §6 authority are asbestos, chlorofluorocarbons (CFCs), and polychlorinated biphenyls (PCBs).

EPA's TSCA Assistance Information Service, at (202) 554-1404, answers questions and distributes guidance pertaining to Toxic Substances Control Act standards. The Service operates from 8:30 a.m. through 4:30 p.m., EST, excluding Federal holidays.

Clean Air Act

The Clean Air Act (CAA) and its amendments, including the Clean Air Act Amendments (CAAA) of 1990, are designed to “protect and enhance the nation's air resources so as to promote the public health and welfare and the productive capacity of the population.” The CAA consists of six sections, known as Titles, which direct EPA to establish national standards for ambient air quality and for EPA and the States to implement, maintain, and enforce these standards through a variety of mechanisms. Under the CAAA, many facilities will be required to obtain permits for the first time. State and local governments oversee, manage, and enforce many of the requirements of the CAAA. CAA regulations appear at 40 CFR Parts 50-99.

Pursuant to Title I of the CAA, EPA has established national ambient air quality standards (NAAQSs) to limit levels of "criteria pollutants," including carbon monoxide, lead, nitrogen dioxide, particulate matter, ozone, and sulfur dioxide. Geographic areas that meet NAAQSs for a given pollutant are classified as attainment areas; those that do not meet NAAQSs are classified as non-attainment areas. Under §110 of the CAA, each State must develop a State Implementation Plan (SIP) to identify sources of air pollution and to determine what reductions are required to meet Federal air quality standards.

Title I also authorizes EPA to establish New Source Performance Standards (NSPSs), which are nationally uniform emission standards for new stationary sources falling within particular industrial categories. NSPSs are based on the pollution control technology available to that category of industrial source but allow the affected industries the flexibility to devise a cost-effective means of reducing emissions.

Under Title I, EPA establishes and enforces National Emission Standards for Hazardous Air Pollutants (NESHAPs), nationally uniform standards oriented towards controlling particular hazardous air pollutants (HAPs). Title III of the CAAA further directed EPA to develop a list of sources that emit any of 189 HAPs, and to develop regulations for these categories of sources. To date EPA has listed 174 categories and developed a schedule for the establishment of emission standards. The emission standards will be developed for both new and existing sources based on "maximum achievable control technology" (MACT). The MACT is defined as the control technology achieving the maximum degree of reduction in the emission of the HAPs, taking into account cost and other factors.

Title II of the CAA pertains to mobile sources, such as cars, trucks, buses, and planes. Reformulated gasoline, automobile pollution control devices, and vapor recovery nozzles on gas pumps are a few of the mechanisms EPA uses to regulate mobile air emission sources.

Title IV establishes a sulfur dioxide emissions program designed to reduce the

formation of acid rain. Reduction of sulfur dioxide releases will be obtained by granting to certain sources limited emissions allowances, which, beginning in 1995, will be set below previous levels of sulfur dioxide releases.

Title V of the CAAA of 1990 created a permit program for all "major sources" (and certain other sources) regulated under the CAA. One purpose of the operating permit is to include in a single document all air emissions requirements that apply to a given facility. States are developing the permit programs in accordance with guidance and regulations from EPA. Once a State program is approved by EPA, permits will be issued and monitored by that State.

Title VI is intended to protect stratospheric ozone by phasing out the manufacture of ozone-depleting chemicals and restrict their use and distribution. Production of Class I substances, including 15 kinds of chlorofluorocarbons (CFCs), will be phased out entirely by the year 2000, while certain hydrochlorofluorocarbons (HCFCs) will be phased out by 2030.

EPA's Control Technology Center, at (919) 541-0800, provides general assistance and information on CAA standards. The Stratospheric Ozone Information Hotline, at (800) 296-1996, provides general information about regulations promulgated under Title VI of the CAA, and EPA's EPCRA Hotline, at (800) 535-0202, answers questions about accidental release prevention under CAA §112(r). In addition, the Technology Transfer Network Bulletin Board System (modem access (919) 541-5742)) includes recent CAA rules, EPA guidance documents, and updates of EPA activities.

This section discusses the Federal regulations that may apply to this sector. The purpose of this section is to highlight, and briefly describe the applicable Federal requirements so that the reader is aware of these requirements. The section provides a summary of each major environmental statute, and a description of regulations that may specifically apply to the profiled industry. Some profiles also provide information regarding current rulemaking activity that might specifically impact this sector. The descriptions within Section VI are intended solely for guidance. No statutory or regulatory requirements are in any way altered by any statement(s) contained herein. For more in-depth information, readers should consult the United States Code and the Code of Federal Regulations as well as State or local regulatory agencies. EPA Hotline contacts are also provided for each major statute.

VI.B. Industry Specific Regulations

A number of statutes and regulations affect the metal fabrication and finishing industry. The electroplating and metal finishing pretreatment standards promulgated under the Clean Water Act regulate the chemicals in wastewater, the Clean Air Act regulates air emissions, and the Resource Conservation and Recovery Act regulates hazardous waste generation, transportation, treatment, storage, and disposal. Each is discussed briefly below.

Clean Water Act (CWA)

Two Clean Water Act regulations affect the fabricated metal products industry (SIC 34): the Effluent Guidelines and Standards for Metal Finishing (40 CFR Part 433) and the Effluent Guidelines and Standards for Electroplating (40 CFR Part 413). The regulations targeting the electroplating industry were issued before those targeting the metal finishing industry as a whole. Companies regulated by the electroplating standards (40 CFR Part 413) before the metal finishing standards (40 CFR Part 433) were promulgated, become subject to the requirements of the metal finishing standards when (or if) they make modifications to their facility's operating functions (e.g., facility, equipment, process modifications). If companies made no such modifications, they remain regulated by the electroplating standards. All new facilities are subject to the standards set forth in 40 CFR Part_433.

The Effluent Guidelines and Standards for Metal Finishing (40 CFR Part 433) are applicable to wastewater generated by any of these operations:

- Electroplating
- Electroless Plating
- Anodizing
- Coating
- Chemical Etching and Milling
- Printed Circuit Board Manufacturing.

If any of the above processes are performed, the metal finishing standards will also apply to discharges from 40 additional processes, including: cleaning, polishing, shearing, hot dip coating, solvent degreasing, painting, etc.

The standards include daily maximums and maximum monthly average concentration limitations. The standards are based on milligrams per square meter of operation and determine the amount of wastewater pollutants from various operations that may be discharged. The uniformity in standards meets industry requests for equivalent limits for process lines often found together. The metal finishing standards also reduce the need to use the Combined Wastestream Formula.

Specific pretreatment standards may also apply to wastewater discharges from other metal finishing operations. The more specific standards will apply to those metal finishing wastestreams which appear to be covered by both standards. The requirements in the following regulations take precedence over those contained in the general metal finishing regulation:

- Iron and Steel Manufacturing (40 CFR Part 420)
- Battery Manufacturing (40 CFR Part 461)

- Plastic Molding and Forming (40 CFR Part 463)
- Coil Coating (40 CFR Part 465)
- Porcelain Enameling (40 CFR Part 466)
- Aluminum Forming (40 CFR Part 467)
- Copper Forming (40 CFR Part 468)
- Electrical and Electronic Components (40 CFR Part 469)
- Nonferrous Forming (40 CFR Part 471)
- Lead-Tin-Bismuth Forming Category (40 CFR Part 471, Subpart A)
- Zinc Forming Subcategory (40 CFR Part 471, Subpart_H).

The Effluent Guidelines and Standards for Electroplating (40 CFR Part_413) cover wastewater dischargers from electroplating operations, in which metal is electroplated on any basis material, and to related metal finishing operations. As stated previously, facilities regulated by the electroplating standards may become subject to the metal finishing standards if they make modifications to their facility's operating functions (e.g., facility, equipment, process modifications). Independent printed circuit board manufacturers are defined as facilities which manufacture printed circuit boards principally for sale to other companies. These facilities remain subject only to the electroplating standards (40 CFR Part 413), primarily to minimize the economic impact to these relatively small facilities. Also excluded from the metal finishing regulations are facilities which perform metallic platemaking and gravure cylinder preparation conducted within printing and publishing facilities.

Operations similar to electroplating which are specifically exempt from coverage under the electroplating standards include:

- Continuous strip electroplating conducted within iron and steel manufacturing facilities (40 CFR Part 420)
- Electrowinning and electrorefining conducted as part of nonferrous metal smelting and refining (40 CFR Part 421)
- Electrodeposition of active electrode materials, electroimpregnation, and electroforming conducted as part of battery manufacturing (40 CFR Part 461)
- Metal surface preparation and conversion coating conducted as part of coil coating (40 CFR Part 465)
- Metal surface preparation and immersion plating or electroless plating conducted as a part of porcelain enameling (40 CFR Part_466)

- Metallic platemaking and gravure cylinder preparation conducted within printing and publishing facilities
- Surface treatment including anodizing and conversion coating conducted as part of aluminum forming (40_CFR Part 467).

Clean Air Act (CAA)

The following standards and requirements promulgated under the CAA apply to metal finishing processes:

- National Emission Standards for Chromium Emissions From Hard and Decorative Chromium Electroplating and Chromium Anodizing Tanks (40 CFR Parts 9 and 63, Subpart N, 60 FR 498, January 1995)
- Standards of Performance for Surface Coating of Metal Furniture (40 CFR Part 60, Subpart EE)
- Standards of Performance for Automobile and Light-Duty Truck Surface Coating Operations (40 CFR Part 60, Subpart MM)
- Standards of Performance for Industrial Surface Coatings: Large Appliances (40 CFR Part 60, Subpart SS)
- Standards of Performance for Metal Coil Surface Coating (40 CFR Part 60, Subpart TT)
- Standards of Performance for the Beverage Can Surface Coating Industry (40 CFR Part 60, Subpart WW)
- Standards of Performance for Industrial Surface Coating: Surface Coating of Plastic Parts for Business Machines (40 CFR Part 60, Subpart TTT).

These standards and requirements, although to varying degrees, regulate the discharge of volatile organic chemicals (VOCs).

Resource Conservation and Recovery Act (RCRA)

The greatest quantities of RCRA listed waste and characteristic hazardous waste present in the fabricated metal products industry are identified in Exhibit 33. For more information on RCRA hazardous waste, refer to 40 CFR Part 261.

Exhibit 33
Hazardous Wastes Relevant to the Metal Finishing Industry

EPA Hazardous Waste No.	Hazardous Waste
D006 (cadmium) D007 (chromium) D008 (lead) D009 (mercury) D010 (selenium) D011 (silver)	Wastes which are hazardous due to the characteristic of toxicity for each of the constituents.
F001	Halogenated solvents used in degreasing: tetrachloroethylene, methylene chloride, 1,1,1-trichloroethane, carbon tetrachloride, and chlorinated fluorocarbons; all spent solvent mixtures/blends used in degreasing containing, before use, a total of 10 percent or more (by volume) of one or more of the above halogenated solvents or those solvents listed in F002, F004, and F005; and still bottoms from the recovery of these spent solvents and spent solvent mixtures.
F002	Spent halogenated solvents; tetrachloroethylene, methylene chloride, trichloroethylene, 1,1,1-trichloroethane chlorobenzene, 1,1,2-trichloro-1,2,2-trifluoroethane, ortho-dichlorobenzene, trichlorofluoromethane, and 1,1,2-trichloroethane; all spent solvent mixtures/blends containing, before use, one or more of the above halogenated solvents or those listed in F001, F004, F005; and still bottoms from the recovery of these spent solvents and spent solvent mixtures.
F003	Spent non-halogenated solvents: xylene, acetone, ethyl acetate, ethyl benzene, ethyl ether, methyl isobutyl ketone, n-butyl alcohol, cyclohexanone, and methanol; all spent solvent mixtures/blends containing, before use, only the above spent non-halogenated solvents; and all spent solvent mixtures/blends containing, before use, one or more of the above non-halogenated solvents, and, a total of 10 percent or more (by volume) of one of those solvents listed in F001, F002, F004, F005; and still bottoms from the recovery of these spent solvents and spent solvent mixtures.
F004	Spent non-halogenated solvents: cresols and cresylic acid, and nitrobenzene; all spent solvent mixtures/blends containing, before use, a total of 10 percent or more (by volume) of one or more of the above non-halogenated solvents or those solvents listed in F001, F002, and F005; and still bottoms from the recovery of these spent solvents and spent solvent mixtures.
F005	Spent non-halogenated solvents: toluene, methy ethyl ketone, carbon disulfide, isobutanol, pyridine, benzene, 2-ethoxyethanol, and 2-nitropropane; all spent solvent mixtures/blends containing, before use, a total of 10 percent or more (by volume) of one or more of the above non-halogenated solvents or those solvents listed in F001, F002, or F004; and still bottoms from the recovery of these spent solvents and spent solvents mixtures.
F006	Wastewater treatment sludges from electroplating operations except from the following processes: (1) sulfuric acid anodizing of aluminum; (2) tin plating on carbon steel; (3) zinc plating (segregated basis) on carbon steel; (4) aluminum or zinc-aluminum plating on carbon steel; (5) cleaning/stripping associated with tin, zinc, and aluminum plating on carbon steel; and (6) chemical etching and milling of aluminum.
F007	Spent cyanide plating bath solutions from electroplating operations.
F008	Plating bath residues from the bottom of plating baths from electroplating operations where cyanides are used in the process.

Exhibit 33
Hazardous Wastes Relevant to the Metal Finishing Industry

EPA Hazardous Waste No.	Hazardous Waste
F009	Spent stripping and cleaning bath solutions from electroplating operations where cyanides are used in the process.
F010	Quenching bath residues from oil baths from metal heat treating operations where cyanides are used in the process.
F011	Spent cyanide solutions from salt bath pot cleaning from metal heat treating operations.
F012	Quenching wastewater treatment sludges from metal heat treating operations where cyanides are used in the process.
F019	Wastewater treatment sludges from the chemical conversion coating of aluminum from zirconium phosphating is an exclusive conversion coating process.
K090	Emission control dust or sludge from ferrochromiumsiron production (ferroalloy industry).
K091	Emission control dust or sludge from ferrochromium production (ferroalloy industry).

Source: Sustainable Industry: Promoting Strategic Environmental Protection in the Industrial Sector, Phase I Report, U.S. EPA, OERR, June 1994.

VI.C. Pending and Proposed Regulatory Requirements

Clean Water Act (CWA)

The effluent guidelines and standards for Electroplaters (40 CFR Part 413) and Metal Finishers (40 CFR Part 433) are currently under review. EPA is also currently developing effluent guidelines and standards for the metal products and machinery industry (40 CFR Part 438), which are due by May 1996. It appears that EPA will integrate new regulatory options for the metal finishing industry into this new guideline. Under the anticipated scenario, effluent guidelines for electroplaters and metal finishers would most likely reference appropriate sections of the guideline for the metal products and machinery industry. It is unclear, however, how "job shop" operations, which are not part of the metal products and machinery industry, would be covered under this scenario.

For Phase I of the regulation, EPA will propose effluent limitation guidelines for facilities that generate wastewater while processing metal parts, metal products, and machinery, including: manufacture, assembly, rebuilding, repair, and maintenance. The Phase I regulation will cover seven major industrial groups, including: aircraft, aerospace, hardware (including machine tools, screw machines, metal forgings and stampings, metal springs, heating equipment, and fabricated structural metal, ordinance, stationary industrial equipment (including electrical equipment), mobile industrial equipment, and electronic equipment (including communication equipment).

The legal deadline is May 1996.

Phase II, EPA will propose effluent limitation guidelines for facilities that generate wastewater while processing metal parts, metal products and machinery, including: manufacture, assembly, rebuilding, repair, and maintenance. The Phase II regulation will cover eight major industrial groups, including: motor vehicles, buses and trucks, household equipment, business equipment, instruments, precious and nonprecious metals, shipbuilding, and railroads. The legal deadline is December 31, 1997.

Clean Air Act (CAA)

In addition to the CAA requirements discussed above, EPA is currently working on several regulations that will directly affect the metal finishing industry. Many proposed standards will limit the air emissions from various industries by proposing Maximum Achievable Control Technology (MACT) based performance standards that will set limits on emissions based upon concentrations in the waste stream. Various potential standards are described below.

Organic Solvent Degreasing/Cleaning

EPA proposed a NESHAP (58 FR 62566, November 19, 1993) for the source category of halogenated solvent degreasing/cleaning that will directly affect the metal finishing industry. This will apply to new and existing organic halogenated solvent emissions to a MACT-equivalent level, and will apply to new and existing organic halogenated solvent cleaners (degreasers) using any of the HAPs listed in the CAA Amendments. EPA is specifically targeting vapor degreasers that use the following HAPs: methylene chloride, perchloroethylene, trichloroethylene, 1,1,1-trichloroethane, carbon tetrachloride, and chloroform.

This NESHAP proposes to implement a MACT-based equipment and work practice compliance standard. This would require that a facility use a designated type of pollution prevention technology along with proper operating procedures. However, EPA has also provided an alternative compliance standard. Existing operations, which utilize performance-based standards, can continue to do so if such standards can be shown to achieve the same emission limit as the equipment and work practice compliance standard.

Steel Pickling, HCl

Hydrochloric acid (HCl) and chlorine are among the pollutants listed as hazardous air pollutants in Section 112 of the Clean Air Act Amendments of 1990. Steel pickling processes that use HCl solution and HCl regeneration processes have been identified by the EPA as potentially significant sources of HCl and chlorine air emissions and, as such, a source category for which national emission standards may be warranted. EPA is required to promulgate national emission standards for 50 percent of the

source categories listed in Section 112(e) by November 15, 1997.

Other Future Regulatory Actions

EPA is developing MACT standards for several industries, including: miscellaneous metal parts and products (surface coating), asphalt/coal tar application-metal pipes, metal can (surface coating), metal coil (surface coating), and metal furniture (surface coating). The legal deadline for these rulemakings is November 15, 2000.

VII. COMPLIANCE AND ENFORCEMENT PROFILE

Background

To date, EPA has focused much of its attention on measuring compliance with specific environmental statutes. This approach allows the Agency to track compliance with the Clean Air Act, the Resource Conservation and Recovery Act, the Clean Water Act, and other environmental statutes. Within the last several years, the Agency has begun to supplement single-media compliance indicators with facility-specific, multimedia indicators of compliance. In doing so, EPA is in a better position to track compliance with all statutes at the facility level, and within specific industrial sectors.

A major step in building the capacity to compile multimedia data for industrial sectors was the creation of EPA's Integrated Data for Enforcement Analysis (IDEA) system. IDEA has the capacity to "read into" the Agency's single-media databases, extract compliance records, and match the records to individual facilities. The IDEA system can match Air, Water, Waste, Toxics/Pesticides/EPCRA, TRI, and Enforcement Docket records for a given facility, and generate a list of historical permit, inspection, and enforcement activity. IDEA also has the capability to analyze data by geographic area and corporate holder. As the capacity to generate multimedia compliance data improves, EPA will make available more in-depth compliance and enforcement information. Additionally, sector-specific measures of success for compliance assistance efforts are under development.

Compliance and Enforcement Profile Description

Using inspection, violation, and enforcement data from the IDEA system, this section provides information regarding the historical compliance and enforcement activity of this sector. In order to mirror the facility universe reported in the Toxic Chemical Profile, the data reported within this section consists of records only from the TRI reporting universe. With this decision, the selection criteria are consistent across sectors with certain exceptions. For the sectors that do not normally report to the TRI program, data have been provided from EPA's Facility Indexing System (FINDS) which tracks facilities in all media databases. Please note, in this section, EPA does not attempt to define the actual number of facilities that fall within each sector. Instead, the section portrays the records of a subset of facilities within the sector that are well defined within EPA databases.

As a check on the relative size of the full sector universe, most notebooks contain an estimated number of facilities within the sector according to the Bureau of Census (See Section II). With sectors dominated by small businesses, such as metal finishers and printers, the reporting universe within the EPA databases may be small in comparison to Census data. However, the group selected for inclusion in this data analysis section should be consistent with this sector's general make-up.

Following this introduction is a list defining each data column presented within this section. These values represent a retrospective summary of inspections and enforcement actions, and solely reflect EPA, State, and local compliance assurance activities that have been entered into EPA databases. To identify any changes in trends, the EPA ran two data queries, one for the past five calendar years (August 10, 1990 to August 9, 1995) and the other for the most recent twelve-month period (August 10, 1994 to August 9, 1995). The five-year analysis gives an average level of activity for that period for comparison to the more recent activity.

Because most inspections focus on single-media requirements, the data queries presented in this section are taken from single media databases. These databases do not provide data on whether inspections are State/local or EPA-led. However, the table breaking down the universe of violations does give the reader a crude measurement of the EPA's and States' efforts within each media program. The presented data illustrate the variations across regions for certain sectors.² This variation may be attributable to State/local data entry variations, specific geographic concentrations, proximity to population centers, sensitive ecosystems, highly toxic chemicals used in production, or historical noncompliance. Hence, the exhibited data do not rank regional performance or necessarily reflect which regions may have the most compliance problems.

Compliance and Enforcement Data Definitions

General Definitions

Facilities Indexing System (FINDS) --- this system assigns a common facility number to EPA single-media permit records. The FINDS identification number allows EPA to compile and review all permit, compliance, enforcement, and pollutant release data for any given regulated facility.

Integrated Data for Enforcement Analysis (IDEA) -- is a data integration system that can retrieve information from the major EPA program office databases. IDEA uses the FINDS identification number to "glue together" separate data records from EPA's databases. This is done to create a "master list" of data records for any given facility. Some of the data systems accessible through IDEA are: AIRS (Air Facility Indexing and Retrieval System, Office of Air and Radiation), PCS (Permit Compliance System, Office of Water), RCRIS (Resource Conservation and Recovery Information System, Office of Solid Waste), NCDB (National Compliance Data Base, Office of Prevention, Pesticides, and Toxic Substances), CERCLIS (Comprehensive Environmental and Liability Information System, Superfund), and TRIS (Toxic Release Inventory System). IDEA also contains information from outside sources such as Dun and Bradstreet and the Occupational Safety and Health Administration (OSHA). Most data queries displayed in notebook Sections IV and VII were conducted using IDEA.

Data Table Column Heading Definitions

Facilities in Search -- are based on the universe of TRI reporters within the listed SIC code range. For industries not covered under TRI reporting requirements, the notebook uses the FINDS universe for executing data queries. The SIC code range selected for each search is defined by each notebook's selected SIC code coverage described in Section II.

Facilities Inspected --- indicates the level of EPA and State agency facility inspections for the facilities in this data search. These values show what percentage of the facility universe is inspected in a 12 or 60 month period. This column does not count non-inspectional compliance activities such as the review of facility-reported discharge reports.

Number of Inspections -- measures the total number of inspections conducted in this sector. An inspection event is counted each time it is entered into a single media database.

Average Time Between Inspections -- provides an average length of time, expressed in months, that a compliance inspection occurs at a facility within the defined universe.

Facilities with One or More Enforcement Actions -- expresses the number of facilities that were party to at least one enforcement action within the defined time period. This category is broken down further into Federal and State actions. Data are obtained for administrative, civil/judicial, and criminal enforcement actions. Administrative actions include Notices of Violation (NOVs). A facility with multiple enforcement actions is only counted once in this column (facility with 3 enforcement actions counts as 1). All percentages that appear are referenced to the number of facilities inspected.

Total Enforcement Actions -- describes the total number of enforcement actions identified for an industrial sector across all environmental statutes. A facility with multiple enforcement actions is counted multiple times (a facility with 3 enforcement actions counts as 3).

State Lead Actions -- shows what percentage of the total enforcement actions are taken by State and local environmental agencies. Varying levels of use by States of EPA data systems may limit the volume of actions accorded State enforcement activity. Some States extensively report enforcement activities into EPA data systems, while other States may use their own data systems.

Federal Lead Actions -- shows what percentage of the total enforcement actions are taken by the U.S. EPA. This value includes referrals from State agencies. Many of these actions result from coordinated or joint State/Federal efforts.

Enforcement to Inspection Rate -- expresses how often enforcement actions result from inspections. This value is a ratio of enforcement actions to inspections, and is presented for comparative purposes only. This measure is a rough indicator of the relationship between inspections and enforcement. This measure simply indicates historically how many enforcement actions can be attributed to inspection activity. Related inspections and enforcement actions under the Clean Water Act (PCS), the Clean Air Act (AFS) and the Resource Conservation and Recovery Act (RCRA) are included in this ratio. Inspections and actions from the TSCA/FIFRA/EPCRA database are not factored into this ratio because most of the actions taken under these programs are not the result of facility inspections. This ratio does not account for enforcement actions arising from non-inspection compliance monitoring activities (e.g., self-reported water discharges) that can result in enforcement action within the CAA, CWA and RCRA.

Facilities with One or More Violations Identified -- indicates the number and percentage of inspected facilities having a violation identified in one of the following data categories: In Violation or Significant Violation Status (CAA); Reportable Noncompliance, Current Year Noncompliance, Significant Noncompliance (CWA); Noncompliance and Significant Noncompliance (FIFRA, TSCA, and EPCRA); Unresolved Violation and Unresolved High Priority Violation (RCRA). The values

presented for this column reflect the extent of noncompliance within the measured time frame, but do not distinguish between the severity of the noncompliance. Percentages within this column can exceed 100 percent because facilities can be in violation status without being inspected. Violation status may be a precursor to an enforcement action, but does not necessarily indicate that an enforcement action will occur.

Media Breakdown of Enforcement Actions and Inspections -- four columns identify the proportion of total inspections and enforcement actions within EPA Air, Water, Waste, and TSCA/FIFRA/EPCRA databases. Each column is a percentage of either the "Total Inspections," or the "Total Actions" column.

VII.A. Fabricated Metal Products Industry Compliance History

Exhibit 34 presents enforcement and compliance information specific to the fabricated metal products industry. As indicated in this exhibit, Regions IV, V, and IX conduct the largest number of inspections in this industry. This is consistent with the fact that the fabricated metal products industry is geographically concentrated near industrial areas. The data also indicates that nearly all of Region IV's enforcement actions are State-lead.

VII.B. Comparison of Enforcement Activity Between Selected Industries

Exhibits 35 - 38 provide enforcement and compliance information for selected industries. The fabricated metal products industry comprises the largest number of facilities tracked by EPA across the selected industries. Likewise, it has the largest number of inspections and enforcement actions. For this industry, RCRA inspections comprise over half of all inspections conducted, while CWA inspections account for 15 percent of these inspections. The low CWA inspection rate is in conflict with the large number of water discharges that are generated by this industry.

Exhibit 34
Fab. Metal Product-Specific
Five Year Enforcement and Compliance Summary for the Fabricated Metal Industry

A	B	C	D	E	F	G	H	I	J
Fabricated Metal SIC 34	Facilities in Search	Facilities Inspected	Number of Inspections	Average Number of Months Between Inspections	Facilities w/one or more Enforcement Actions	Total Enforcement Actions	State Lead Actions	Federal Lead Actions	Enforcement to Inspection Rate
Region I	199	139	585	20	40	99	66%	34%	0.17
Region II	171	127	515	20	39	139	78%	22%	0.27
Region III	186	130	626	18	43	156	86%	14%	0.25
Region IV	320	220	1480	13	48	178	94%	6%	0.12
Region V	880	466	1549	34	54	128	75%	25%	0.08
Region VI	171	85	268	38	17	54	89%	11%	0.20
Region VII	109	71	238	27	13	31	71%	29%	0.13
Region VIII	36	14	50	43	7	8	38%	63%	0.16
Region IX	228	65	125	109	7	20	65%	35%	0.16
Region X	46	23	73	38	12	27	63%	37%	0.37
Total/Average	2,346	1,340	5,509	26	280	840	80%	20%	0.15

Exhibits 35
Five Year Enforcement and Compliance Summary for Selected Industries

A	B	C	D	E	F	G	H	I	J
Industry Sector	Facilities in Search	Facilities Inspected	Number of Inspections	Average Number of Months Between Inspections	Facilities w/One or More Enforcement Actions	Total Enforcement Actions	State Lead Actions	Federal Lead Actions	Enforcement to Inspection Rate
Metal Mining	873	339	1,519	34	67	155	47%	53%	0.10
Non-metallic Mineral Mining	1,143	631	3,422	20	84	192	76%	24%	0.06
Lumber and Wood	464	301	1,891	15	78	232	79%	21%	0.12
Furniture	293	213	1,534	11	34	91	91%	9%	0.06
Rubber and Plastic	1,665	739	3,386	30	146	391	78%	22%	0.12
Stone, Clay, and Glass	468	268	2,475	11	73	301	70%	30%	0.12
Nonferrous Metals	844	474	3,097	16	145	470	76%	24%	0.15
Fabricated Metal	2,346	1,340	5,509	26	280	840	80%	20%	0.15
Electronics/Computers	405	222	777	31	68	212	79%	21%	0.27
Motor Vehicle Assembly	598	390	2,216	16	81	240	80%	20%	0.11
Pulp and Paper	306	265	3,766	5	115	502	78%	22%	0.13
Printing	4,106	1,035	4,723	52	176	514	85%	15%	0.11
Inorganic Chemicals	548	298	3,034	11	99	402	76%	24%	0.13
Organic Chemicals	412	316	3,864	6	152	726	66%	34%	0.19
Petroleum Refining	156	145	3,257	3	110	797	66%	34%	0.25
Iron and Steel	374	275	3,555	6	115	499	72%	28%	0.14
Dry Cleaning	933	245	633	88	29	103	99%	1%	0.16

Exhibits 36
One Year Enforcement and Compliance Summary for Selected Industries

A	B	C	D	E		F		G	H
				Facilities w/One or More Violations	Facilities w/One or More Enforcement Actions	Number	Percent*		
Industry Sector	Facilities in Search	Facilities Inspected	Number of Inspections	Number	Percent*	Number	Percent*	Total Enforcement Actions	Enforcement to Inspection Rate
Metal Mining	873	114	194	82	72%	16	14%	24	0.13
Non-metallic Mineral Mining	1,143	253	425	75	30%	28	11%	54	0.13
Lumber and Wood	464	142	268	109	77%	18	13%	42	0.58
Furniture	293	160	113	66	41%	3	2%	5	0.55
Rubber and Plastic	1,665	271	435	289	107%	19	7%	59	0.14
Stone, Clay, and Glass	468	146	330	116	79%	20	14%	66	0.20
Nonferrous Metals	844	202	402	282	140%	22	11%	72	0.18
Fabricated Metal	2,346	477	746	525	110%	46	10%	114	0.15
Electronics/Computers	405	60	87	80	133%	8	13%	21	0.24
Motor Vehicle Assembly	598	169	284	162	96%	14	8%	28	0.10
Pulp and Paper	306	189	576	162	86%	28	15%	88	0.15
Printing	4,106	397	676	251	63%	25	6%	72	0.11
Inorganic Chemicals	548	158	427	167	106%	19	12%	49	0.12
Organic Chemicals	412	195	545	197	101%	39	20%	118	0.22
Petroleum Refining	156	109	437	109	100%	39	36%	114	0.26
Iron and Steel	374	167	488	165	99%	20	12%	46	0.09
Dry Cleaning	933	80	111	21	26%	5	6%	11	0.10

*Percentages in Columns E and F are based on the number of facilities inspected (Column C). Percentages can exceed 100% because violations and actions can occur without a facility inspection.

Exhibits 37

Five Year Inspection and Enforcement Summary by Statute for Selected Industries

Industry Sector	Number of Facilities Inspected	Total Inspections	Enforcement Actions	Clean Air Act		Clean Water Act		Resource Conservation and Recovery Act		FIFRA/TSCA/* EPCRA/Other	
				% of Total Inspections	% of Total Actions	% of Total Inspections	% of Total Actions	% of Total Inspections	% of Total Actions	% of Total Inspections	% of Total Actions
Metal Mining	339	1,519	155	35%	17%	57%	60%	6%	14%	1%	9%
Non-metallic Mineral Mining	631	3,422	192	65%	46%	31%	24%	3%	27%	<1%	4%
Lumber and Wood	301	1,891	232	31%	21%	8%	7%	59%	67%	2%	5%
Furniture	293	1,534	91	52%	27%	1%	1%	45%	64%	1%	8%
Rubber and Plastic	739	3,386	391	39%	15%	13%	7%	44%	68%	3%	10%
Stone, Clay and Glass	268	2,475	301	45%	39%	15%	5%	39%	51%	2%	5%
Nonferrous Metals	474	3,097	470	36%	22%	22%	13%	38%	54%	4%	10%
Fabricated Metal	1,340	5,509	840	25%	11%	15%	6%	56%	76%	4%	7%
Electronics/Computers	222	777	212	16%	2%	14%	3%	66%	90%	3%	5%
Motor Vehicle Assembly	390	2,216	240	35%	15%	9%	4%	54%	75%	2%	6%
Pulp and Paper	265	3,766	502	51%	48%	38%	30%	9%	18%	2%	3%
Printing	1,035	4,723	514	49%	31%	6%	3%	43%	62%	2%	4%
Inorganic Chemicals	302	3,034	402	29%	26%	29%	17%	39%	53%	3%	4%
Organic Chemicals	316	3,864	726	33%	30%	16%	21%	46%	44%	5%	5%
Petroleum Refining	145	3,237	797	44%	32%	19%	12%	35%	52%	2%	5%
Iron and Steel	275	3,555	499	32%	20%	30%	18%	37%	58%	2%	5%
Dry Cleaning	245	633	103	15%	1%	3%	4%	83%	93%	<1%	1%

*

Actions taken to enforce the Federal Insecticide, Fungicide, and Rodenticide Act; the Toxic Substances and Control Act, and the Emergency Planning and Community Right-to-Know Act as well as other Federal environmental laws.

Exhibits 38

One Year Inspection and Enforcement Summary by Statute for Selected Industries

Industry Sector	Number of Facilities Inspected	Total Inspections	Enforcement Actions	Clean Air Act		Clean Water Act		Resource Conservation and Recovery Act		FIFRA/TSCA/EPCRA/Other	
				% of Total Inspections	% of Total Actions	% of Total Inspections	% of Total Actions	% of Total Inspections	% of Total Actions	% of Total Inspections	% of Total Actions
Metal Mining	114	194	24	47%	42%	43%	34%	10%	6%	<1%	19%
Non-metallic Mineral Mining	253	425	54	69%	58%	26%	16%	5%	16%	<1%	11%
Lumber and Wood	142	268	42	29%	20%	8%	13%	63%	61%	<1%	6%
Furniture	293	160	5	58%	67%	1%	10%	41%	10%	<1%	13%
Rubber and Plastic	271	435	59	39%	14%	14%	4%	46%	71%	1%	11%
Stone, Clay, and Glass	146	330	66	45%	52%	18%	8%	38%	37%	<1%	3%
Nonferrous Metals	202	402	72	33%	24%	21%	3%	44%	69%	1%	4%
Fabricated Metal	477	746	114	25%	14%	14%	8%	61%	77%	<1%	2%
Electronics/Computers	60	87	21	17%	2%	14%	7%	69%	87%	<1%	4%
Motor Vehicle Assembly	169	284	28	34%	16%	10%	9%	56%	69%	1%	6%
Pulp and Paper	189	576	88	56%	69%	35%	21%	10%	7%	<1%	3%
Printing	397	676	72	50%	27%	5%	3%	44%	66%	<1%	4%
Inorganic Chemicals	158	427	49	26%	38%	29%	21%	45%	36%	<1%	6%
Organic Chemicals	195	545	118	36%	34%	13%	16%	50%	49%	1%	1%
Petroleum Refining	109	439	114	50%	31%	19%	16%	30%	47%	1%	6%
Iron and Steel	167	488	46	29%	18%	35%	26%	36%	50%	<1%	6%
Dry Cleaning	80	111	11	21%	4%	1%	22%	78%	67%	<1%	7%

* Actions taken to enforce the Federal Insecticide, Fungicide, and Rodenticide Act; the Toxic Substances and Control Act, and the Emergency Planning and Community Right-to-Know Act as well as other Federal environmental laws.

VII.C. Review of Major Legal Actions

VII.C.1 Review of Major Cases

This section provides summary information about major cases that have affected this sector. As indicated in EPA's *Enforcement Accomplishments Report, FY 1991, FY 1992, FY 1993* publications, 15 significant enforcement actions were resolved between 1991 and 1993 for the metal finishing industry. CWA violations comprised eight of these actions, the most of any statute. Following CWA violations were five actions involving RCRA violations, three involving CERCLA violations, one with a CAA violation, and one with a SDWA violation. The companies against which the cases were brought are primarily metal finishers, including those that provide electroplating, coating, and plating services. Two of the companies perform metal forming and fabrication functions.

Twelve of the fifteen cases resulted in the assessment of a penalty. Penalties ranged from \$15,000 to \$500,000, and in four cases, additional money was spent by the defendant to improve the processes or technologies and to increase future compliance. For example, in U.S. v. North American Philips Corp. (1992), the company paid a \$500,000 penalty and spent approximately \$583,000 to eliminate wastewater discharges from some of its non-federally regulated processes. The average penalty per case was approximately \$322,000. Supplemental Environmental Projects (SEPs) were required in two of the cases. Texas Instruments, Inc. (1993), for example, was required to pay a penalty and replace a vapor degreaser unit with a more environmentally-protective unit.

Although many cases involved civil penalties, four of the cases involved criminal convictions, resulting in penalties and/or jail sentences for the owners and/or operators of the facilities. For example, the case of U.S. v. John Borowski and Borjohn Optical Technology, Inc., resulted in the first criminal endangerment conviction under CWA; the company president was sentenced to 26 months in prison, followed by two years of supervised release.

VII.C.2 Supplemental Environmental Projects

Supplementary Environmental Projects (SEPs) are compliance agreements that reduce a facility's stipulated penalty in return for an environmental project that exceeds the value of the reduction. Often, these projects fund pollution prevention activities that can significantly reduce the future pollutant loadings of a facility.

In December, 1993, the Regions were asked by EPA's Office of Enforcement and Compliance Assurance to provide information on the number and type of SEPs entered into by the Regions. The following exhibit contains a representative sample of the Regional responses addressing the fabricated metal products industry. The information contained in the exhibit is not comprehensive and provides only a sample of the types of SEPs developed for the fabricated metal products industry. Please note that the projects describes in this section do not necessarily apply to all facilities in this sector. Facility-specific conditions must be considered carefully when evaluating potential supplemental environmental projects.

Exhibit 39
Supplemental Environmental Projects
Fabrication of Metal Products (SIC 34)

Case Name	EPA Region	Statute/Type of Action	Type of SEP	Estimated Cost to Company	Expected Environmental Benefits	Final Assessed Penalty	Final Penalty After Mitigation
Truex, Inc. Pawtucket, RI (metal parts manufacturing)	1	EPCRA	Pollution Reduction	\$ 70,000	Install and operate a cooling water and process rinse recycling system and a metal recovery system to reduce the water used and to recover copper and zinc process waste for recycling.	\$ 54,000	\$ 29,000
Walton & Lonsbury Attleboro, MA (electroplating facility)	1	RCRA	Pollution Prevention and Pollution Reduction	\$ 18,270	Implement a system to reclaim and reuse chromic acid rinse waters. Eliminate the use of trichloroethane in the degreasing operation. Install a filtration system which will extend the life of the hydrochloric acid strip solution.	\$ 15,100	\$ 15,100
Verilyte Gold, Inc. Chelsea, MA (electroplating facility)	1	RCRA	Pollution Prevention	\$ 21,450	Install a hot-air metal parts drying unit which eliminates 100 percent of the use of freon.	\$ 26,400	\$ 15,675
The Torrington Company (precision bearings, assemblies, gears, and couplings manufacture)	1	EPCRA	Equipment Donation	\$ 16,792	Donate emergency and/or computer equipment to the Local Emergency Planning Committee (LEPC) to respond to and/or plan for chemical emergencies. Participate in LEPC activities.	\$ 35,364	\$ 18,572
Texas Instruments, Inc. Attleboro, MA (metallurgic materials manufacture)	1	EPCRA	Equipment Donation	\$ 8,063	Purchase computer hardware and software for the LEPC and Attleboro Fire Department (AFD) to assist the LEPC in tracking and storing information about identity and location of hazardous chemicals and to assist the AFD in responding to accidental releases.	\$ 14,025	\$ 5,962

Exhibit 39
Supplemental Environmental Projects
Fabrication of Metal Products (SIC 34)

Case Name	EPA Region	Statute/Type of Action	Type of SEP	Estimated Cost to Company	Expected Environmental Benefits	Final Assessed Penalty	Final Penalty After Mitigation
Texas Instruments, Inc. Attleboro, MA (metal finishing)	1	CAA	Pollution Prevention	\$ 170,000	Replace the current vapor degreaser unit with a closed-loop degreaser unit to prevent the use of Freon 113.	\$ 90,000	\$ 49,900
L.S. Starrlett Company, Inc. Athol, MA (tool manufacture)	1	EPCRA	Pollution Prevention	\$ 290,000	Install three alkaline-based aqueous agitation wash systems, replace Freon cleaning units in two departments, and a methylene chloride cleaning unit in a third department to reduce Freon and methylene chloride by 100 percent.	\$ 176,800	\$ 83,200
Teradyne, Inc Nashua, NH (soldering products manufacture)	1	RCRA	Pollution Prevention	\$ 800,000	Purchase and install solvent replacement units for two facilities. Stop using Freon 113 in manufacturing operations at one facility and stop using 1,1,1-trichloroethane (except in water sensitive assemblies) at another facility.	\$ 120,000	\$ 50,000
M.W. Dunton Company West Warwick, RI (soldering products manufacture)	1	EPCRA	SERC/LEPC	\$ 4,754	Donate emergency response equipment to the volunteer fire department to assist the LEPC in tracking and storing information about identity and location of hazardous chemicals and to assist the fire department in responding to accidental releases.	\$ 9,500	\$ 4,745

Exhibit 39
Supplemental Environmental Projects
Fabrication of Metal Products (SIC 34)

Case Name	EPA Region	Statute/Type of Action	Type of SEP	Estimated Cost to Company	Expected Environmental Benefits	Final Assessed Penalty	Final Penalty After Mitigation
The Drawn Metal Tube Company Thomaston, CT	1	CWA	Pollution Prevention	\$ 145,000	Install a closed loop evaporator system to eliminate the discharge of copper forming wastewater to the river.	\$ 77,624	\$ 45,000
Pioneer Metal Finishing	2	EPCRA	Pollution Prevention	\$ 13,128	Pretreat used nickel bags and used filter bags from nickel filters to recover waste nickel, thus minimizing the disposal of hazardous nickel waste.		\$ 5,000
Elken Metals Company Alloy, WV	3	xxxx	Pollution Reduction	\$ 449,000	Remove PCB transformers, PCB capacitors, and retrofilling PCB-contaminated transformers to reduce the amount of PCBs which may be released.	\$ 280,000	\$ 17,250
Southern Foundry Supply	4	EPCRA	Pollution Reduction	\$ 34,000	Assess the feasibility of a process to recover pure nickel from plant wastestreams and construct a pilot plant to perform the recovery to reduce the quantity of heavy metals entering the environment.	\$ 15,840	\$ 2,376
Cerro Metal Products, Inc. Bellefonte, PA	3	TSCA	Accelerated Compliance	\$ 40,000	Replace PCB transformers fluid with non-PCB fluid to eliminate the potential for uncontrolled releases of PCBs.	\$ 31,700	\$ 18,450

VIII. COMPLIANCE ACTIVITIES AND INITIATIVES

This section highlights the activities undertaken by this industry sector and public agencies to voluntarily improve the sector's environmental performance. These activities include those independently initiated by industrial trade associations. In this section, the notebook also contains a listing and description of national and regional trade associations.

VIII.A. Sector-Related Environmental Programs and Activities

Numerous compliance activities and initiatives are occurring throughout the fabricated metal products industry. Many companies are conducting private research on developing new alloys and experimenting with the use of citric acid oils or terpenes instead of the more toxic degreasers (e.g., 1,1,1-trichloroethane).

Several projects currently underway are sponsored by Federal, State, and county governments; universities; and trade associations. Several of these initiatives are described below.

Common Sense Initiative

The Common Sense Initiative (CSI), a partnership between EPA and private industry, aims to create environmental protection strategies that are cleaner for the environment and cheaper for industry and taxpayers. As part of CSI, representatives from Federal, State, and local governments; industry; community-based and national environmental organizations; environmental justice groups; and labor organizations, come together to examine the full range of environmental requirements affecting the following six selected industries: automobile manufacturing; computers and electronics, iron and steel, metal finishing, petroleum refining; and printing.

CSI participants are looking for solutions that:

- Focus on the industry as a whole rather than one pollutant
- Seek consensus-based solutions
- Focus on pollution prevention rather than end-of-pipe controls
- Are industry-specific.

The Common Sense Initiative Council (CSIC), chaired by EPA Administrator Browner, consists of a parent council and six subcommittees (one per industry sector). Each of the subcommittees have met and identified issues and project areas for

emphasis, and workgroups have been established to analyze and make recommendation on these issues. (Contact: Greg Waldrip at (202) 564-7024)

Design for the Environment (DfE)

DfE is an EPA program operated by the Office of Pollution Prevention and Toxics. DfE is a voluntary program which promotes the use of safer chemicals, processes, and technologies in the earliest product design stages. The DfE program assists industry in making informed, environmentally responsible design choices by providing standardized analytical tools for industry application and providing information on the comparative environmental and human health risk, cost, and performance of chemicals, processes, and technologies. DfE also helps small businesses by analyzing pollution prevention alternatives and disseminating the information to industry and the public. By helping to translate pollution prevention into meaningful terms, DfE contributes to building the institutional structure in corporations to support pollution prevention. DfE activities fall into two broad categories: (1) the industry-specific projects which encourage businesses to incorporate pollution prevention into their designs; and (2) long-term projects that translate pollution prevention into terms that make sense to professions such as chemistry, chemical engineering, marketing, accounting, and insurance.

One DfE effort (in partnership with the Manufacturing Extension Partnership) is the development of a benchmarking database and accompanying questionnaire to serve as an incentive mechanism for companies. Metal fabricators are encouraged to complete a company-specific questionnaire and return it to the Manufacturing Extension Partnership for analysis. The company will then receive a report comparing its data to that of other companies. Based on the results, companies are encouraged to voluntarily implement mechanisms that will minimize environmental damage resulting from the manufacturing processes. Subjects included in the questionnaire, database, and report range from the use of automation and monitoring technologies to the volumes of wastes generated, treated, and recycled.

Minnesota Technical Assistance Program (MnTAP)

In the State of Minnesota, waste reduction is receiving increased attention as an alternative to waste disposal. To help companies reduce waste, Minnesota developed MnTAP, a program that helps facilities identify waste reduction opportunities. MnTAP recognizes that each company's operations are unique and has, therefore, developed a series of checklists to help identify waste reduction possibilities. The checklists are designed to assist each facility evaluate wastestreams and identify waste reduction opportunities. The checklists cover several areas relevant to this profile, including operating procedures, cleaning, machining, plating/metal finishing, coating/painting, and formulating.

To ensure effective use of MnTAP's checklists, staff is available to answer questions over the phone or on-site once checklists have been completed. MnTAP has also gathered vendor and technical information for many of the options listed which may be useful in assessing a facility's waste reduction opportunities. In addition, MnTAP has developed lists of vendors who provide recycling services on a contract basis if it is not feasible to implement the options listed on the checklists. MnTAP staff can be reached at (612) 625-4949.

Pollution Prevention and Waste Minimization in the Metal Finishing Industry Workshop

The University of Nebraska-Lincoln sponsored a Pollution Prevention and Waste Minimization in the Metal Finishing Industry workshop in 1993. The workshop was designed for managers and operators of electroplating and galvanizing operations; engineers; environmental consultants; waste management consultants; Federal, State, and local government officials; and individuals responsible for training in the area of metal finishing waste management. Topics covered included:

- Saving money and reducing risk through pollution prevention and waste minimization
- Incorporating pollution prevention into planning electroplating and galvanizing operations
- Conducting waste minimization audits
- Developing and analyzing options for pollution prevention/waste minimization
- Innovative techniques for implementing a pollution prevention/waste minimization program.

For more information concerning this workshop, contact David Montage of the University of Nebraska at W348 Nebraska Hall, Lincoln, NE 68588-0531.

Pollution Prevention Opportunities Checklists

The County Sanitation Districts of Los Angeles County developed a detailed pollution prevention opportunities checklist to help companies identify and implement pollution prevention methods where possible. The County Sanitation Districts has identified specific opportunities for the metal fabricators and metal finishing industries.

Southeast Michigan Initiative (SEMI)

EPA and the Michigan Department of Natural Resources (MDNR) have launched a geographic initiative in the Southeast Michigan area because of the magnitude of contaminant releases and human population in the area. Eight counties within the Initiative have been identified as having major environmental problems. Several rivers in the area suffer from impaired uses, polluted airsheds, combined sewer overflows, contaminated sediments, and major toxic pollutant releases.

A Steering Committee, composed of senior managers of MDNR and EPA, meet quarterly and are responsible for making decisions concerning the overall direction of the Initiative. There are also four working committees, including: public participation; remedial action plans/sediments; pollution prevention; and compliance and enforcement.

For more information regarding SEMI contact Rufus Anderson, Assistant Deputy Director, MDNR Region 5 at (313) 953-1444 or Mardi Klevs, EPA SEMI Coordinator at (312) 353-5490.

The Blackstone Project

The Blackstone Project, a joint initiative by the Massachusetts Department of Environmental Protection (DEP) and the Department of Environmental Management (DEM), is intended to make environmental protection more efficient and less costly to companies. As Doug Fine, the Compliance and Enforcement Coordinator, explains, the Blackstone Project's two goals are to encourage industry to use less toxic material in manufacturing, and to increase the efficiency of DEP's industrial inspections by conducting one-stop, facility-wide inspections. The project focused first on fabricated metal products facilities near the Blackstone River Valley and later expanded to all types of manufacturers in that region. The State of Massachusetts now conducts facility-wide inspections in a continuous effort to reduce pollution.

The NCMS/NAMF Pollution Control Assessment Project

The National Center for Manufacturing Sciences (NCMS) and the National Association of Metal Finishers (NAMF) worked jointly to develop the *Pollution Prevention and Control Technology for Plating Operations* publication which documents pollution prevention techniques and pollution control equipment used in

plating operations. To develop this document and the associated database, NCMS and NAMF collected pollution prevention information through surveys, literature searches, and interviews with industry experts. The resulting publication illustrates pollution prevention techniques and equipment used, assesses the effectiveness of these techniques as illustrated by historical data, and indicates the types of facilities in which these techniques were employed.

The Sustainable Industry Project

The EPA Office of Policy, Planning, and Evaluation's Sustainable Industry Project represents a new approach to the development of environmental policy for industry. The primary goal of the Sustainable Industry Project is to develop, test, and implement industry-specific policy recommendations that will remove barriers to innovation and promote strategic environmental protection in the selected industries (i.e., photoimaging, metal finishing, and thermoset plastics). To do this, EPA gained a thorough understanding of the relevant characteristics of the industries—the industry-specific economic, institutional, cultural, technical, life-cycle, and regulatory factors that may promote or hinder environmental improvements. Further, EPA identified driving factors and barriers that influence corporate decision-making and environmental performance. Understanding the factors that influence environmental performance in a given industry provides the basis for designing policies that will encourage improved performance. Working with industries, States, non-government organizations (NGOs), and other interested parties, EPA intends to design policies that will protect the environment and human health while fostering competitive and sustainable industries.

U.S. Bureau of Mines (USBM)

The U.S. Bureau of Mines has developed a technique to regenerate chromium bearing solutions such as those used in chromate conversion aluminum electroplating. The process is in commercial use and a company is preparing to license the technology to manufacture and market solution treatment equipment. In related work, the Bureau worked with the specialty steel industry to reduce waste generated by pickling operations. Other USBM research includes the dewatering of sludges, extraction of metals from a variety of liquid and solid wastes, recycling of metals, and development of lead-free free-machining copper alloys.

Wastewater Technology Center

The Wastewater Technology Center (WTC) is an organization of scientists, chemists, technologists, and support staff dedicated to the research and development of technologies to control industrial and municipal discharges. Conducting bench-scale, pilot plant, and full-scale studies for 25 years, over 100 WTC staff have assisted industry in solving a wide variety of environmental concerns. Recently, WTC has

worked closely with the Metal Finishing Task Force, a committee of Federal government, provincial government, and metal finishing industry representatives to develop a pollution prevention guide. The document is designed to assist metal finishers in establishing a pollution prevention planning process. WTC also provides assistance in interpreting and using this guide and facilitates other pollution prevention planning programs that metal finishers have or are anticipating establishing. In addition, to help metal finishers better understand and use the pollution prevention planning, WTC, in conjunction with Sheridan College, has prepared an extensive training course in pollution prevention planning in metal finishing.

Other Initiatives

The metal finishers and platers industry is being considered by EPA for several upcoming initiatives. Work has already begun by the NPDES and the RCRA programs. The NPDES Branch began an Industrial User initiative in May 1993 that targeted metal finishers who failed to report their compliance status with categorical pretreatment effluent standards (40 CFR 433). In addition, the RCRA program has an initiative that applies to iron and steel and metal plating/finishing industries. The State of Utah plans to inspect each of the iron and steel and metal plating/finishing industries in the State.

VIII.B. EPA Voluntary Programs*33/50 Program*

The "33/50 Program" is EPA's voluntary program to reduce toxic chemical releases and transfers of 17 chemicals from manufacturing facilities. Participating companies pledge to reduce their toxic chemical releases and transfers by 33 percent as of 1992 and by 50 percent as of 1995 from the 1988 baseline year. Certificates of Appreciation have been given to participants who meet their 1992 goals. The list of chemicals includes 17 high-use chemicals reported in the Toxics Release Inventory.

The number of companies that use 33/50 chemicals per industry sector ranged from a low of six in the tobacco industry to a high of 1,803 in the fabricated metal products industry. Of these companies, 187 participate in the 33/50 program. Some 33/50 chemicals that are particularly relevant to this industry include: lead and lead compounds, methyl ethyl ketone, nickel and nickel compounds, tetrachloroethylene, toluene, trichloroethane, trichlorethylene, and xylenes.

Exhibit 40 lists those companies participating in the 33/50 program that reported under SIC code 34 to TRI. Many of the participating companies listed multiple SIC codes (in no particular order), and are therefore likely to conduct operations in addition to Fabricated Metal Products industry. The table shows the number of facilities within each company that are participating in the 33/50 program; each company's total 1993 releases and transfers of 33/50 chemicals; and the percent reduction in these chemicals since 1988.

**Exhibit 40
33/50 Program**

Parent Facility name	Parent City	ST	SIC Codes	# of Participating Facilities	1993 Releases and Transfers	% Reduction 1988 to 1993
A B Chance Co.	Centralia	MO	3644, 3613, 3423	1	59,907	***
ABC Holdings Inc.	Eufaula	AL	2851, 3449	4	55,230	**
Acme Metals Inc.	Riverdale	IL	3312, 3499, 3479, 3398	5	157,232	38
Adolph Coors Company	Golden	CO	2082, 3411, 3443	1	158,792	59
Aero Metal Finishing Inc.	Fenton	MO	3471	1	12,900	43
Akzo Nobel Inc.	Chicago	IL	3412	1	930,189	13
Aladdin Industries Inc.	Nashville	TN	3086, 3469, 3648	1	53,741	91
All Metal Stamping Inc.	Abbotsford	WI	3429, 3469, 3499	1	1,112	50
Allied-Signal Inc.	Morristown	NJ	3728, 3471, 3724	2	2,080,501	50
Aluminum Company Of America	Pittsburgh	PA	3463	5	2,403,017	51
America's Best Quality	Milwaukee	WI	3471	1	1,025	74
American National Can Company	Chicago	IL	3411	9	2,303,898	50
Ameron Inc. Delaware	Pasadena	CA	3272, 3317, 3443, 3479	1	184,882	**
Amsted Industries Incorporated	Chicago	IL	3315, 3496, 3471	1	1,834,493	66
Anderson Screw Products Inc.	Jamestown	NY	3451	1	7,860	100
Anomatic Corporation	Newark	OH	3471	1	403,270	50
Apogee Enterprises Inc.	Minneapolis	MN	3479	1	423,862	15
Armco Inc.	Pittsburgh	PA	3446	2	1,849,709	4
Asea Brown Boveri Inc.	Stamford	CT	3443	2	501,017	50
Asko Processing Inc.	Seattle	WA	3479	2	36,991	50
Atlas Die Inc.	Elkhart	IN	3479	1	26,400	100
Atlas Plating Inc.	Cleveland	OH	3471	1	505	33
Automatic Pltg Of Bridgeport	Bridgeport	CT	3471	1	635	***
B. L. Downey Co. Inc.	Broadview	IL	3479	1	250	75
Baker Hughes Incorporated	Houston	TX	3533, 3471	1	193,116	20
Ball And Socket Mfg. Co. Inc.	Cheshire	CT	3965, 3469, 3471	1	9,820	**
Ball Corporation	Muncie	IN	3411	7	721,859	86
Bausch & Lomb Incorporated	Rochester	NY	3471, 3851, 3827	1	51,706	*
Bead Industries Inc.	Bridgeport	CT	3499, 3679, 3432	1	107,143	***
Bethlehem Steel Corporation	Bethlehem	PA	3312, 3462	1	792,550	50
BHP Holdings (USA) Inc.	San Francisco	CA	3479	1	64,365	***

Exhibit 40 (cont'd)
33/50 Program

Parent Facility name	Parent City	ST	SIC Codes	# of Participating Facilities	1993 Releases and Transfers	% Reduction 1988 to 1993
Black & Decker Corporation	Baltimore	MD	3429	6	487,188	50
Blaser Die Casting Co.	Seattle	WA	3471	1	38,900	78
Bmc Industries Inc.	Minneapolis	MN	3479	1	207,147	5
Brod & Mcclung-Pace Co.	Portland	OR	3433, 3564, 3585	1	20,300	**
Brooklyn Park Oil Co. Inc.	Minneapolis	MN	3364, 3471	1	12,606	13
Burnham Corporation	Lancaster	PA	3433	1	34,149	96
C. A. Dahlin Co.	Elk Grove	IL	3469	1	12,900	***
Caldwell Products Inc.	Abilene	TX	3471	1	11,880	50
Canon Business Machines Inc.	Costa Mesa	CA	3479	1	5	95
Cargill Detroit Corporation	Clawson	MI	3462	1	717,558	31
Channelock Inc.	Meadville	PA	3423	1	118,913	***
Chart Industries Inc.	Willoughby	OH	3443	2	8,260	79
Chrysler Corporation	Highland Park	MI	3465	2	3,623,717	80
Cold Heading Co.	Detroit	MI	3471	1	16,021	52
Collis Inc.	Clinton	IA	3496, 3471, 3499	1	63,010	60
Commercial Enameling Co.	Huntington	CA	3431	1	250	100
Conagra Inc.	Omaha	NE	3411	1	39,588	8
Cooper Industries Inc.	Houston	TX	3462, 3317	7	1,048,465	75
Corning Inc.	Corning	NY	3469, 3471	1	1,521,528	14
Crenlo Inc.	Rochester	MN	3444	1	66,945	***
Crown City Plating Co.	El Monte	CA	3471	1	151,509	30
Crown Cork & Seal Company	Philadelphia	PA	2752, 3479	20	1,236,689	50
Crown Metal Finishing Co. Inc.	Kenilworth	NJ	3479	1	50,282	21
Dana Corporation	Toledo	OH	3451, 3492	3	1,652,123	**
Davis & Hemphill	Elkridge	MD	3451	1	13,365	*
Delbar Products Inc.	Perkasie	PA	3089, 3465	2	102,983	50
Delta Engineering & Mfg. Co.	Tualatin	OR	3444	1	8,239	***
Disston Company	Danville	VA	3425	1	27,000	*
Duo-Fast Corp.	Franklin Park	IL	3469	1	652,519	45
Dynamic Metal Products Company	Manchester	CT	3444	1	255	***
Eagle-Picher Industries Inc.	Cincinnati	OH	3053, 3479	3	227,242	50
Eaton Corporation	Cleveland	OH	3462	4	450,211	50
Ektron Industries Inc.	Aumsville	OR	3471	1	4,354	50
Electro-Platers Of York Inc.	Wrightsville	PA	3471	1	29,462	***
Emerson Electric Co.	Saint Louis	MO	3569, 3541, 3496, 3449	4	2,140,497	50
Enamelers & Japanners Inc.	Chicago	IL	3479	1	40,000	*
Ernie Green Industries Inc.	Dayton	OH	3465	3	329,828	*
Excell Polishing & Buffing Co.	Wadsworth	OH	3471	1	13,149	***
Federal-Mogul Corporation	Southfield	MI	3365, 3366, 3471	3	255,996	50
Feldkircher Wire Fabg Co.	Nashville	TN	3471, 3496	1	750	18

Exhibit 40 (cont'd)
33/50 Program

Parent Facility name	Parent City	ST	SIC Codes	# of Participating Facilities	1993 Releases and Transfers	% Reduction 1988 to 1993
Fleet Design Inc.	Portland	TN	3471	3	522	80
Fmc Corporation	Chicago	IL	3462, 3324, 3325	1	502,318	50
Ford Motor Company	Dearborn	MI	3465, 3711	5	15,368,032	15
Foto Mark Inc.	Mendota	MN	3479	1	73,325	5
Fulcrum II Limited Partnership	New York	NY	3462	1	77,680	24
G M Nameplate Inc.	Seattle	WA	2759, 2752, 3679, 3993,	1	15,405	50
G. W. Lisk Co. Inc.	Clifton Springs	NY	3499, 3451, 3471, 3491	1	15,548	*
Gates Corporation	Denver	CO	3429, 3451	1	478,941	***
Gayston Corporation	Springboro	OH	3483, 3463	1	33,355	56
Gefinor (USA) Inc.	New York	NY	3471, 3951	1	9,088	50
General Dynamics Corporation	St Louis	MO	3441, 3621	1	588,246	84
General Electric Company	Fairfield	CT	3444, 3724	7	5,010,856	50
General Motors Corporation	Detroit	MI	3651, 3694, 3679, 3672, 3471	15	16,751,198	*
Gillette Company	Boston	MA	3421	1	21,497	99
Globe Engineering Company Inc.	Wichita	KS	3728, 3724, 3444, 3599	1	18,678	*
Hager Hinge Company	Saint Louis	MO	3429	2	97,121	64
Halliburton Company	Dallas	TX	3443	1	16,884	**
Hand Industries Inc.	Warsaw	IN	3471	1	37,000	***
Handy & Harman	New York	NY	3471, 3469	3	477,150	50
Harrow Industries Inc.	Grand Rapids	MI	3429	1	128,355	*
Harsco Corporation	Camp Hill	PA	3469, 3449	8	415,574	**
Henkel Corporation	Kng Of Prussa	PA	3479	1	164,363	55
Heresite Protective Coatings	Manitowoc	WI	3479, 2851, 2821	1	367	50
Hi-Shear Industries Inc.	New Hyde Park	NY	3452, 3471, 3451, 3479	1	8,226	50
HM Anglo-American Ltd	New York	NY	3423	4	1,265,741	2
Hohman Plating & Mfg. Inc.	Dayton	OH	3471, 2851, 3479	1	13,293	**
Hoover Sys. Inc.	Dallas	TX	2542, 3444, 3441	1	510	27
Houston Plating Co.	South Houston	TX	3471	1	997	*
IBM	Armonk	NY	3672, 3579, 3471	1	1,411,304	1
Illinois Tool Works Inc.	Glenview	IL	3469	3	673,128	***
Imagineering Enterprises Inc.	South Bend	IN	3471	1	11,282	***
Inco United States Inc.	New York	NY	3462, 3463	1	346,594	26

Exhibit 40 (cont'd)
33/50 Program

Parent Facility name	Parent City	ST	SIC Codes	# of Participating Facilities	1993 Releases and Transfers	% Reduction 1988 to 1993
Indal Ltd	Weston,		3442	3	303,909	*
Indianhead Plating Inc.	Chippewa	WI	3471	1	14,005	***
Industrial Hard Chrome Ltd.	Geneva	IL	3471	2	13,213	*
Ingersoll-Rand Company	Woodcliff	NJ	3429	4	96,553	60
Interlake Corporation	Lisle	IL	3441	1	159,932	37
International Paper Company	Purchase	NY	8731, 3471, 3544	1	2,784,831	50
ITT Corporation	New York	NY	3471, 3479, 3498	3	735,332	7
Jacobson Mfg Co. Inc.	Kenilworth	NJ	3452	1	12	*
Jefferson City Mfg. Co. Inc.	Jefferson City	MO	3363, 3451, 3469	1	4,850	**
Jor-Mac Company Inc.	Grafton	WI	3499, 3479	1	4,995	***
Jordan-Edmiston Group Inc.	New York	NY	3421	1	332,930	27
Kaspar Electroplating Corp	Shiner	TX	3471	1	56	*
Kelso Asi Partners L P	New York	NY	3585, 3433, 3564	1	355,557	43
Kennedy Mfg. Co.	Van Wert	OH	3469	2	69,756	80
Kitzinger Cooperage Corp	Saint Francis	WI	3412, 5085, 5805	1	84	50
Lacks Enterprises Inc.	Grand Rapids	MI	3089, 3471	3	867,354	27
Lawrence Brothers Inc.	Sterling	IL	3429	1	6,827	50
Leco Corporation	Saint Joseph	MI	3826, 3471, 3229	1	6,800	14
Litton Industries Inc.	Beverly Hills	CA	3731, 3441, 3443	1	332,264	**
Lord Corporation	Erie	PA	3069, 3471	2	1,111,309	58
Lorin Ind.	Muskegon	MI	3471, 3354	1	25,500	50
LTV Steel Co. Inc.	Cleveland	OH	3471	1	612,924	60
Luke Engineering & Mfg Corp	Wadsworth	OH	3471	1	6,600	**
Macklanburg-Duncan Co.	Oklahoma City	OK	3429	1	23,376	***
Marmon Group, Inc.	Chicago	IL	3451	5	1,092,218	1
Martin Marietta Corporation	Bethesda	MD	3769, 3499, 3479, 3471	1	223,286	73
Masco Industries Inc.	Taylor	MI	3398, 3471	13	488,484	***
Mascotech	Taylor	MI	3465	9	3,163,830	35
Matec Corporation	Hopkinton	MA	3479, 2899, 3489	1	21,800	*
Meaden Screw Products Company	Burr Ridge	IL	3451	1	12,860	40
Mechanical Galv-Plating Corp	Sidney	OH	3479	1	3,448	***
Meco Inc.	Paris	IL	3443	1	51,864	***
Metallics Inc.	Onalaska	WI	3479	1	27,720	50
Metromedia Company	E Rutherford	NJ	3451, 3499	1	295,322	*
Midwest Plating Company Inc.	Grand Rapids	MI	3471	1	520	50

Exhibit 40 (cont'd)
33/50 Program

Parent Facility name	Parent City	ST	SIC Codes	# of Participating Facilities	1993 Releases and Transfers	% Reduction 1988 to 1993
Miller Smith Mfg. Co.	Spring Lake	MI	3471	1	17,247	***
Modern Metal Products Co.	Loves Park	IL	3471	1	163	71
Modern Welding Company	Owensboro	KY	3441, 3443	1	5	*
Modine Manufacturing Company	Racine	WI	3443, 3714	4	488,996	50
Morgan Stanley Leveraged Fund	New York	NY	3724, 3471	2	2,166,420	13
Napco Inc.	Valencia	PA	3499, 3444, 3446, 3442, 3479	1	41,037	60
Nashua Corp.	Nashua	NH	2672, 3572, 3577, 2869,	2	1,818,504	**
National Forge Company	Irvine	PA	3462	1	3,100	*
National Semiconductor Corp.	Santa Clara	CA	3679, 3674, 3471	1	23,173	6
New Dimension Plating Inc.	Hutchinson	MN	3471	1	17,300	35
Newell Co.	Freeport	IL	3471, 3496	5	324,283	23
Norandal USA	Brentwood	TN	3353, 3479	1	627,740	6
North American Investment Prop	Hawthorne	NY	3443	1	11,755	70
Northland Stainless Inc.	Tomahawk	WI	3443	1	7,570	***
Norton Company	Worcester	MA	3425	1	40,831	63
Oak Industries Inc.	Waltham	MA	3451, 3471, 3398	1	34,128	16
Oberg Industries Inc.	Freeport	PA	3469, 3471, 3089	1	18,435	85
Oregon Sand Blasting & Coating	Tualatin	OR	3479	1	14,660	*
Owens-Illinois Inc.	Toledo	OH	3469	2	412,573	***
Pace Industries Inc.	New York	NY	3639, 3444, 3469	1	14,530	**
Parker Hannifin Corporation	Cleveland	OH	3451, 3492, 3494	9	244,966	50
Pechiney Corporation	Greenwich	CT	3479, 3724	1	216,177	***
Penn Engineering & Mfg	Danboro	PA	3452	1	111,897	100
Philip Morris Companies Inc.	New York	NY	3479, 3468	1	259,053	**
Photocircuits Corporation	Glen Cove	NY	3672, 3471	1	292,178	92
PMF Ind. Inc.	Williamsport	PA	3499, 3471	1	13,015	34
Precision Plating Inc.	Minneapolis	MN	3471	1	10,155	***
Precision Products Group Inc.	Rockford	IL	3398, 3469, 3495, 3493, 3499	1	149,834	***
Premark International Inc.	Deerfield	IL	3556, 3325, 3444	2	140,313	***
Process Engineering Co. Inc.	Jackson	MS	3471	1	10,305	50
Production Paint Finishers	Bradford	OH	3479	1	11,584	60
Prospect Purchasing Co. Inc.	N Brunswick	NJ	3412	1	47,275	50

Exhibit 40 (cont'd)
33/50 Program

Parent Facility name	Parent City	ST	SIC Codes	# of Participating Facilities	1993 Releases and Transfers	% Reduction 1988 to 1993
Protective Coatings Inc.	Kent	WA	3471, 3479	1	41,137	***
Providence Metallizing Co. Inc.	Pawtucket	RI	3479, 3471	1	35,347	70
Quality Rolling & Deburring Co.	Thomaston	CT	3471	1	287,324	***
R P Adams Company Inc.	Tonawanda	NY	3469	1	20	***
Raytheon Company	Lexington	MA	3672, 3471, 3674	1	706,045	50
Rehrig International Inc.	Richmond	VA	3471	1	2,261	***
Reilly Plating Co.	Nanticoke	PA	3471	1	750	2
Reliance Finishing Co.	Grand Rapids	MI	3479	1	11,400	**
Reynolds Metals Company	Richmond	VA	3479	1	2,055,294	38
S. K. Williams Co.	Wauwatosa	WI	3471	1	126	*
Schuller Corporation	Denver	CO	3444	1	24,694	***
Seneca Foods Corporation	Pittsford	NY	3411	1	19,717	50
Siebe Industries Inc.	Richmond	VA	3400, 3471	2	849,335	2
Skills Inc.	Seattle	WA	3479	1	7,650	***
Smith Everett Investment Co.	Milwaukee	WI	3444	1	240,445	89
Smith System Manufacturing Co.	Plano	TX	3444, 2531	1	499	*
Sommer Metalcraft Corp	Crawfordsville	IN	3471	1	1,500	*
Sonoco Products Company	Hartsville	SC	2655, 3469	2	621,380	1
Southline Metal Products Co.	Houston	TX	3412	1	77,552	***
Spx Corporation	Muskegon	MI	3479	1	554,822	2
Stanley Works	New Britain	CT	3471	10	508,199	50
Sunset Fireplace Fixtures	City Of	CA	3429	1	12,800	25
Super Radiator Coils Ltd	Minneapolis	MN	3400	1	139,235	82
Superior Plating Inc.	Minneapolis	MN	3471	1	39,406	***
Surftech Finishes Company	Kent	WA	3471	1	20,270	*
Swva Inc.	Huntington	WV	3441	1	43,405	27
Tawas Plating Company	Tawas City	MI	3471	1	3,265	50
Tech Industries Inc.	Woonsocket	RI	3089, 3471	1	27,003	64
Techmetals Inc.	Dayton	OH	3471	1	10,645	50
Tektronix Inc.	Beaverton	OR	3663, 3444	1	12,393	*
Tenneco Inc.	Houston	TX	3441	1	1,272,423	8
Texas Instruments Incorporated	Dallas	TX	3822, 2812, 3356, 3471.	1	344,225	25
Therma-Tru Corp	Sylvania	OH	3442, 3089	1	17,255	41
Thiokol Corporation	Ogden	UT	3452	2	1,001,162	40
Thomas Steel Strip Corp	Warren	OH	3471, 3316	1	6,839	50
Trinova Corporation	Maumee	OH	3451, 3498	1	488,879	50
U T I Corporation	Collegeville	PA	3469	1	473,872	50
United States Can Company Del	Hinsdale	IL	3412, 3411	1	5,299	*
United Technologies Corp	Hartford	CT	3086, 3471	2	2,393,252	50
US Can Corporation (Del)	Oak Brook	IL	3411	7	573,088	37

Exhibit 40 (cont'd)
33/50 Program

Parent Facility name	Parent City	ST	SIC Codes	# of Participating Facilities	1993 Releases and Transfers	% Reduction 1988 to 1993
Valley Plating Works	Los Angeles	CA	3471	1	130	75
Valley Technologies Inc.	Valley Park	MO	3398, 3463	1	0	**
Van Der Horst Usa Corporation	Terrell	TX	3471	1	20,623	**
Veba Corporation	Houston	TX	3471, 3599	1	24,254	10
W W Custom Clad Inc.	Canajoharie	NY	3471	1	8,595	50
W. J. Roscoe Co.	Akron	OH	2851, 2891, 2517, 3479	1	40,051	50
Walter Industries Inc.	Tampa	FL	3321, 3479	1	859,751	***
Warner-Lambert Company	Morris Plains	NJ	3421	1	146,333	40
Weiss-Aug Co. Inc.	East Hanover	NJ	3465, 3469	1	15,834	**
Wheeling-Pittsburgh Corp	Wheeling	WV	3479	1	560,055	66
Whirlpool Corporation	Benton Harbor	MI	3450, 3471, 3490	1	1,540,866	50
Whyco Chromium Company Inc.	Thomaston	CT	3471	1	88,737	50
Winona Corporation	Winona Lake	IN	3479	1	47,260	50
Wisconsin Tool & Stamping Co.	Schiller Park	IL	3469	1	42,000	**
WNA Inc.	Wilmington	DE	3449	2	248,148	***
Worldwide Cryogenics Holdings	Minneapolis	MN	3443	1	133,810	*
Wright Products Corp	Minneapolis	MN	3429	1	45,287	***
York Metal Finishing Co.	Philadelphia	PA	3471	1	5	*
Zippo Manufacturing Company	Bradford	PA	3421	2	189,929	50
* = not quantifiable against 1988						

Environmental Leadership Program

The Environmental Leadership Program (ELP) is a national initiative piloted by EPA and State agencies in which facilities have volunteered to demonstrate innovative approaches to environmental management and compliance. EPA has selected 12 pilot projects at industrial facilities and Federal installations which will demonstrate the principles of the ELP program. These principles include: environmental management systems, multimedia compliance assurance, third-party verification of compliance, public measures of accountability, community involvement, and mentoring programs. In return for participating, pilot participants receive public recognition and are given a period of time to correct any violations discovered during these experimental projects. At present, no metal finishing or fabricating facilities are carrying out ELP pilot projects. (Contact: Taiming Chang, ELP Director, (202) 564-5081 or Robert Fentress, (202) 564-7023)

Gillette ELP Project

The objective of the Gillette Environmental Leadership Program is the development and implementation of a third party compliance and management systems audit and verification process. The project will involve the development of environmental compliance and environmental management systems audit protocol criteria that can be adopted and easily implemented by other facilities to assess compliance with

relevant regulations. The three Gillette facilities that are participating are: South Boston Manufacturing Center, blade and razor manufacturing; North Chicago Manufacturing Center, batch chemical manufacturing; and Santa Monica, CA, stationary products manufacturing. (Contact: Scott Throwe, (202) 564-7013).

Project XL

Project XL was initiated in March 1995 as a part of President Clinton's *Reinventing Environmental Regulation* initiative. The projects seek to achieve cost effective environmental benefits by allowing participants to replace or modify existing regulatory requirements on the condition that they produce greater environmental benefits. EPA and program participants will negotiate and sign a Final Project Agreement, detailing specific objectives that the regulated entity shall satisfy. In exchange, EPA will allow the participant a certain degree of regulatory flexibility and may seek changes in underlying regulations or statutes. Participants are encouraged to seek stakeholder support from local governments, businesses, and environmental groups. EPA hopes to implement fifty pilot projects in four categories including facilities, sectors, communities, and government agencies regulated by EPA. Applications will be accepted on a rolling basis and projects will move to implementation within six months of their selection. For additional information regarding XL Projects, including application procedures and criteria, see the May 23, 1995 Federal Register Notice. Contact Jon Kessler, Office of Policy Analysis, (202) 260-4034.

Green Lights Program

EPA's Green Lights program was initiated in 1991 and has the goal of preventing pollution by encouraging U.S. institutions to use energy-efficient lighting technologies. The program has over 1,500 participants which include major corporations; small and medium sized businesses; Federal, State and local governments; non-profit groups; schools; universities; and health care facilities. Each participant is required to survey their facilities and upgrade lighting wherever it is profitable. EPA provides technical assistance to the participants through a decision support software package, workshops and manuals, and a financing registry. EPA's Office of Air and Radiation is responsible for operating the Green Lights Program. (Contact: Susan Bullard, (202) 233-9065 or the Green Light/Energy Star Hotline at (202) 775-6650)

WasteWi\$e Program

The WasteWi\$e Program was started in 1994 by EPA's Office of Solid Waste and Emergency Response. The program is aimed at reducing municipal solid wastes by promoting waste minimization, recycling collection, and the manufacturing and purchase of recycled products. As of 1994, the program had about 300 companies as members, including a number of major corporations. Members agree to identify and

implement actions to reduce their solid wastes and must provide EPA with their waste reduction goals along with yearly progress reports. EPA in turn provides technical assistance to member companies and allows the use of the WasteWi\$e logo for promotional purposes. (Contact: Lynda Wynn, (202) 260-0700 or the WasteWi\$e Hotline at (800) 372-9473)

Climate Wise Recognition Program

The Climate Change Action Plan was initiated in response to the U.S. commitment to reduce greenhouse gas emissions in accordance with the Climate Change Convention of the 1990 Earth Summit. As part of the Climate Change Action Plan, the Climate Wise Recognition Program is a partnership initiative run jointly by EPA and the Department of Energy. The program is designed to reduce greenhouse gas emissions by encouraging reductions across all sectors of the economy, encouraging participation in the full range of Climate Change Action Plan initiatives, and fostering innovation. Participants in the program are required to identify and commit to actions that reduce greenhouse gas emissions. The program, in turn, gives organizations early recognition for their reduction commitments; provides technical assistance through consulting services, workshops, and guides; and provides access to the program's centralized information system. At EPA, the program is operated by the Air and Energy Policy Division within the Office of Policy Planning and Evaluation. (Contact: Pamela Herman, (202) 260-4407)

*NICE*³

The U.S. Department of Energy and EPA's Office of Pollution Prevention are jointly administering a grant program called The National Industrial Competitiveness through Energy, Environment, and Economics (NICE³). By providing grants of up to 50 percent of the total project cost, the program encourages industry to reduce industrial waste at its source and become more energy-efficient and cost-competitive through waste minimization efforts. Grants are used by industry to design, test, demonstrate, and assess the feasibility of new processes and/or equipment with the potential to reduce pollution and increase energy efficiency. The program is open to all industries; however, priority is given to proposals from participants in the pulp and paper, chemicals, primary metals, and petroleum and coal products sectors. (Contact: DOE's Golden Field Office, (303) 275-4729)

VIII.C. Trade Association/Industry Sponsored Activity

Associations, universities, and the industry are currently working with EPA to make the Agency aware of issues that relate to metal fabricating and finishing industries. As a result of these relationships and overall interest in achieving compliance and reducing pollution, additional research relating to process techniques and pollution prevention alternatives is being conducted. Various workshops and training opportunities have resulted from these efforts. A summary of some trade association and industry activities is presented below, along with some associations related to this industry.

VIII.C.1. Environmental Programs

Several trade and professional associations are working with EPA to make the Agency aware of issues that relate to metal fabricating industries. For example, the Copper and Brass Fabricators Council (CBFC) has been assisting EPA's Office of Solid Waste regarding recycling issues as it develops or redrafts RCRA regulations. CBFC is communicating its experiences with metal fabricating to EPA, in terms of materials used and possible recycling options, in hopes that future regulations might complement the industry's processes.

Additionally, several organizations have sponsored workshops focusing on waste minimization and pollution prevention in several fabricated metal related industries. Three workshops, the Hazardous Waste Management for Small Business Workshop, the Environmentally Conscious Painting Workshop, and the Pollution Prevention Workshop for the Electroplating Industry, are discussed below.

Hazardous Waste Management for Small Business Workshop

The University of Northern Iowa, with support from EPA, Des Moines Area Community College, Northeast Iowa Community College, Scott Community College, and Indiana Hills Community College, sponsored a *Hazardous Waste Management for Small Business* workshop. This workshop was geared towards small businesses and was intended to provide practical answers to environmental regulatory questions. Small businesses covered by the workshop include: manufacturers, vehicle maintenance and repair shops, printers, machine shops, and other businesses that generate potentially hazardous waste. Topics covered include: hazardous waste determination, waste generator categories, management of specific common waste streams, including used oil and solvents, and pollution prevention. (Contact: Duane McDonald, (319) 273-6899)

Environmentally Conscious Painting Workshop

Kansas State University, NIST/Mid-America Manufacturing Technology Center, Kansas Department of Health & Environment, EPA Region 7, Allied Signal, Inc., Kansas City Plant, and the U.S. Department of Energy sponsored the *Environmentally Conscious Painting* workshop. This workshop covered topics such as upcoming regulations and the current regulatory climate, methods to cost-effectively reduce painting wastes and emissions, and alternative painting processes. (Contact: the Kansas State University Division of Continuing Education, (913) 532-5566)

Pollution Prevention Workshop for the Electroplating Industry

Kansas State University Engineering Extension, EPA Region 7, Kansas Department of Health and Environment, and the University of Kansas sponsored the *Pollution Prevention Workshop for the Electroplating Industry*. The workshop described simple techniques for waste reduction in the electroplating industry, including: plating, rinsing processes and wastewater, wastewater management options, metals recovery options, waste treatment and management, and product substitutions and plating alternatives. (Contact: the Kansas State University Division of Continuing Education, (800) 432-8222)

VIII.C.2. Summary of Trade Associations

Various trade associations represent the interests of metal fabricator workers and the industry itself. Some of these organizations are discussed in greater detail below.

American Electroplaters and Surface Finishers Society (AESF) 12644 Research Parkway Orlando, FL 32826 Phone: (407) 281-6441 Fax: (407) 281-6446	Members: 10,000 Staff: 21 Budget: 2,000,000 Contact: Ted Witt, Executive Director
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Founded in 1909, AESF is an international professional society of scientists, technicians, job shop operators, and others interested in research in electroplating, surface finishing, and allied arts. AESF offers classroom training courses, home study courses, cooperative programs, and a voluntary certification program. In addition, it bestows awards, conducts research programs, and provides an insurance program for job shop owners. AESF also publishes *Plating and Surface Finishing* (monthly), *AESF Shop Guide*, books, symposia proceedings, research reports, and training booklets with slide presentations; and makes available films and videotapes.

ASM International (ASM) 9639 Kinsman Materials Park, OH 44073 Phone: (216) 338-5151	Members: 54,000 Staff: 145 Budget: \$19,500,000 Contact: Edward L. Langer
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Founded in 1920, ASM represents metallurgists; materials engineers; executives in materials producing and consuming industries; and teachers and students. This association disseminates technical information about the manufacture, use, and treatment of engineered materials. It offers in-plant, home study, and intensive courses through the Materials Engineering Institute; conducts conferences, seminars, and lectures; presents awards to teachers of materials science and for achievements in the field; and grants scholarships and fellowships. Additionally, it maintains a library of 10,000 volumes on metals and other materials.

Copper and Brass Fabricators Council (CBFC) 1050 17th Street, NW, Suite 440 Washington, DC 20036 Phone: (202) 833-8575	Contact: Joseph L. Mayer
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Founded in 1966, CBFC represents copper and brass fabricators. Its activities involve foreign trade in copper and brass fabricated products, and Federal regulatory matters including legislation, regulations, rules, controls, stockpiling, and other similar measures affecting domestic fabricators of copper and brass products. CBFC holds an annual convention.

Metal Construction Association (MCA) 1101 14th Street, NW, Suite 1100 Washington, DC 20005 Phone: (202) 371-1243 Fax: (202) 371-1090	Members: 100 Staff: 5 Contact: David W. Barrack
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Founded in 1983, MCA represents individuals engaged in the manufacture, design, engineering, sale, or installation of metal used in construction, and others interested in the metal construction industry. It promotes the use of metal in all construction

applications. Additionally, MCA represents all sectors of the metal construction industry; fosters better trade practices and improved communication within the industry; serves as liaison between members and other industry organizations. The association collects and disseminates information; maintains the Merit Award Program to acknowledge outstanding buildings, products, and systems in the industry; plans programs in institutional advertising, voluntary standards, and statistics; proposed educational programs including structure erection, estimating, and bookkeeping; compiles statistics; and bestows scholarships. MCA also prepares and distributes two publications: the *Metal Construction Association-Membership Directory* (annually) and the *Metal Construction Association-Newsletter* (quarterly). Its newsletter includes technical articles, meeting reviews, committee reports, minutes, and a calendar of events. MCA holds a semiannual meeting and Metalcon International Trade Show and an annual meeting.

Metal Fabricating Institute (FMI) PO Box 1178 Rockford, IL 61105 Phone: (815) 965-4031	Staff: 4 Contact: Ronald L. Fowler
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Founded in 1968, MFI conducts technical seminars for structural and sheet metal fabricators to update management on the latest manufacturing techniques. MFI also presents a Fabricating Engineer of the Year Award. In addition, it publishes *Metal Fabricating News* (bimonthly), which contains a calendar of events, new products and literature, book reviews, and a buyers guide. The association also holds a semiannual conference in West Lafayette, Indiana.

Metal Finishers Suppliers Association (MFSA) 801 North Cass, Ste. 300 Westmont, IL 60559 Phone: (708) 887-0797	Members: 180 Companies Staff: 2-4 Budget: \$400,000 Contact: Richard Crain
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Incorporated in 1951, MFSA is the only trade association representing companies that supply chemicals and equipment to the metal finishing industry. MFSA works closely with organizations that represent the metal finishing industry, such as AESF (see above) and the National Association of Metal Finishers (see below), and is involved in several joint programs, including an annual conference. In addition, MFSA publishes a monthly newsletter and has published a dozen technical papers to inform and assist its members.

National Association of Metal Finishers (NAMF) 401 N. Michigan Avenue Chicago, IL 60611-4267 Phone: (312) 644-6610	Members: 940 Staff: 6 Budget: \$750,000 Contact: Brad Parcells
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Founded in 1955, NAMF represents management executives of firms engaged in plating, hard chroming, galvanizing, electroforming, metalizing, organic coating, phosphating, rust proofing, polishing, buffing, anodizing, and other forms of metal finishing. NAMF is concerned primarily with management education, development of finishing standards, and legislative issues. In addition, it publishes *Finishers' Management*, a trade magazine of the plating and finishing industry. NAMF also produces *Finishing Line* (monthly), *Legislative Line* (bi-monthly), and *NAMF Regulatory Compliance Manual*. NAMF holds an annual trade show.

Precision Metalforming Association (PMA) 27027 Chardon Road Richmond Heights, OH 44143 Phone: (216) 585-8800 Fax: (216) 585-3126	Members: 1,000 Staff: 20 Budget: \$3,000,000 Contact: Jon E. Jenson
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Founded in 1942, PMA represents manufacturers of metal stampings, precision metal fabrications, and metal spinings, and their suppliers. PMA provides information and technical services to members. It also presents numerous awards and publishes *Metalforming*, a monthly magazine that addresses: materials and equipment, electronics in metal forming and assembly, taxes, legal issues, and management.

Society for Mining, Metallurgy, and Exploration, Inc. (SME) PO Box 625005 Littleton, CO 80162 Phone: (303) 973-9550	Members: 20,000 Staff: 31 Budget: \$3,700,000 Contact: Gary D. Howell
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Founded in 1871, SME represents individuals engaged in the finding, exploitation, treatment, and marketing of all classes of minerals (metal ores, industrial minerals, and solid fuel) except petroleum. Additionally, it offers specialized education programs; and compiles enrollment and graduation statistics from schools offering engineering degrees in mining, mineral, mineral processing/metallurgical, geological, geophysical technology.

United Steelworkers of America (USWA) 5 Gateway Center Pittsburgh, PA 15222 Phone: (412) 562-2400 Fax: (412) 562-2445	Members: 675,000 Staff: 475 Contact: George Becker
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Founded in 1936, this association has absorbed numerous associations for steel workers. Currently, this agency publishes *Steellabor* ten times a year. This news magazine reports on legislation and regulation affecting the union, union activities at

the national and chapter levels, economic developments, pension news, and information on safety and health. USWA also publishes the *Steelworker Old Time*, quarterly; and holds a biennial convention.

IX. Contacts/Acknowledgments/Resource Materials/Bibliography and Other References

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Contacts*

Name	Organization	Telephone
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Paul Shapiro	U.S. EPA, Office of Research and Development	(202) 260-4969
William Sonntag	National Association of Metal Finishers, American Electroplaters and Surface Finishers Society	(202) 965-5190

¹ TOXNET is a computer system run by the National Library of Medicine that includes a number of toxicological databases managed by EPA, National Cancer Institute, and the National Institute for Occupational Safety and Health. For more information on TOXNET, contact the TOXNET help line at 1-800-231-3766. Databases included in TOXNET are: CCRIS (Chemical Carcinogenesis Research Information System), DART (Developmental and Reproductive Toxicity Database), DBIR (Directory of Biotechnology Information Resources), EMICBACK (Environmental Mutagen Information Center Backfile), GENE-TOX (Genetic Toxicology), HSDB (Hazardous Substances Data Bank), IRIS (Integrated Risk Information System), RTECS (Registry of Toxic Effects of Chemical Substances),

and TRI (Toxic Chemical Release Inventory). HSDB contains chemical-specific information on manufacturing and use, chemical and physical properties, safety and handling, toxicity and biomedical effects, pharmacology, environmental fate and exposure potential, exposure standards and regulations, monitoring and analysis methods, and additional references.

² EPA Regions include the following States: I (CT, MA, ME, RI, NH, VT); II (NJ, NY, PR, VI); III (DC, DE, MD, PA, VA, WV); IV (AL, FL, GA, KY, MS, NC, SC, TN); V (IL, IN, MI, MN, OH, WI); VI (AR, LA, NM, OK, TX); VII (IA, KS, MO, NE); VIII (CO, MT, ND, SD, UT, WY); IX (AZ, CA, HI, NV, Pacific Trust Territories); X (AK, ID, OR, WA).

- * Many of the contacts listed above provided valuable information and comments during the development of this document. EPA appreciated this support and acknowledges that the individuals listed do not necessarily endorse all statements made within this notebook.